Air Force Civil Engineer Center

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Site ST012

Former Liquid Fuel Storage Area

BCT Meeting

16 October 2018

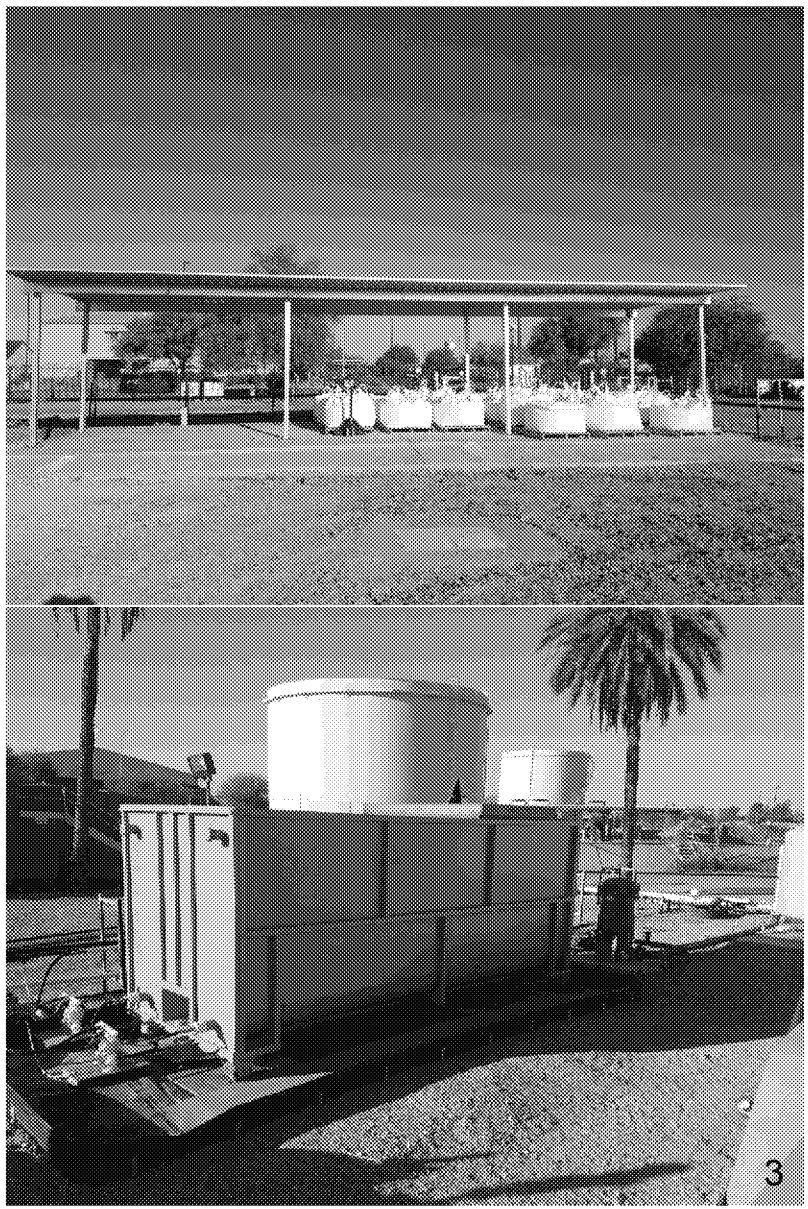
Battle Ready…Built Right!

Site ST012 Outline

- Summary of activities since Sep BCT call
- Update on SVE system (JP-4 equivalent of methane)
- LNAPL monitoring/removal update
- Perimeter well benzene results
- Path forward

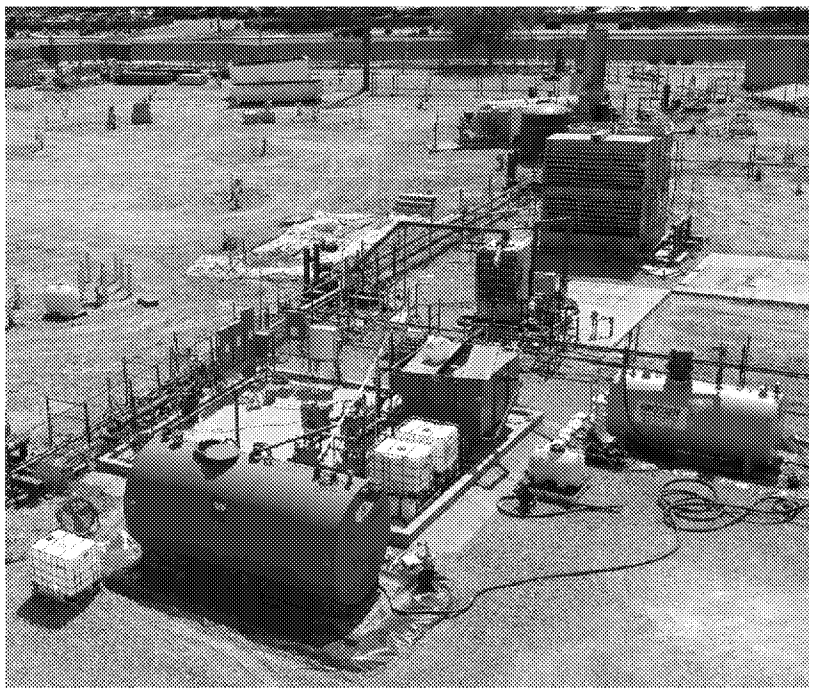
Site ST012 Activities Since Sept

- Continued SVE operation
- Continued LNAPL screening in accessible wells
- Additional iron speciation testing (evaluating results)
- Monthly sampling of CZ23 on 9 Oct (results pending). Last sample (5 Sep) indicated benzene concentration below MCL
- Operation of Extraction and Treatment
  - Perform pump maintenance and repair as needed



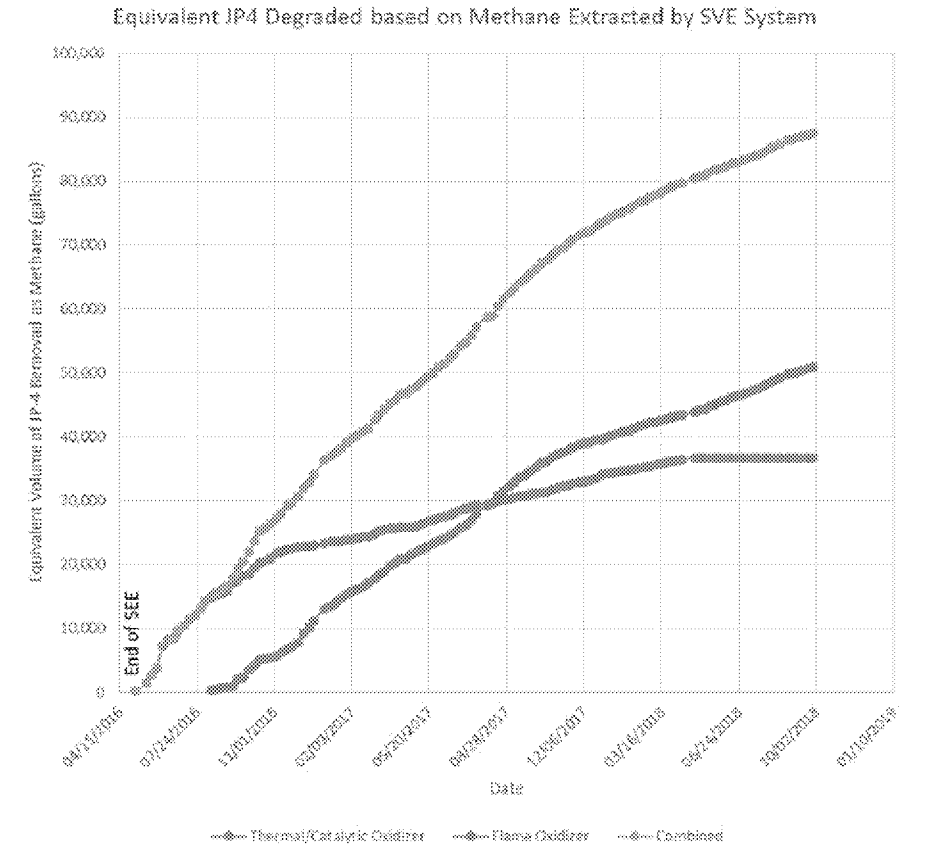
Site ST012 Activities Since September

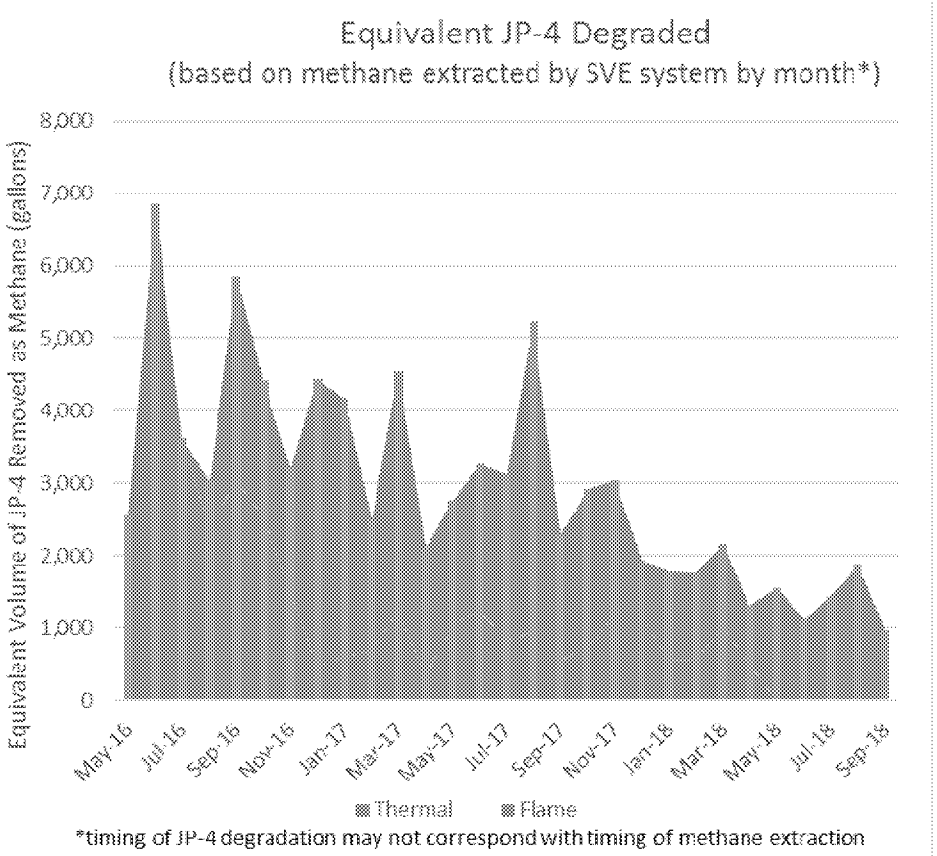
- **Evaluating Off-Gas Treatment**
  - No LNAPL has been recovered since extraction started up
  - Benzene air stripper influent concentration has fluctuated but appears to be decreasing
    - 2 May – 310 µg/L
    - 1 Jun – 1,400 µg/L
    - 5 Jul – 76 µg/L
    - 14 Sep – 1,400 µg/L
  - Off-gas concentrations are low for continued thermal oxidation
  - Installed catalyst (late Sept) in thermal oxidizer for air stripper off-gas
  - Evaluating potential swap of thermal oxidizer from ST035 for flame oxidizer at ST012



JP-4 Degradation Based on Methane Removed with SVE (through 27 Sep)

Site ST012 SVE System Equivalent JP-4 Degradation Based on Methane Removed

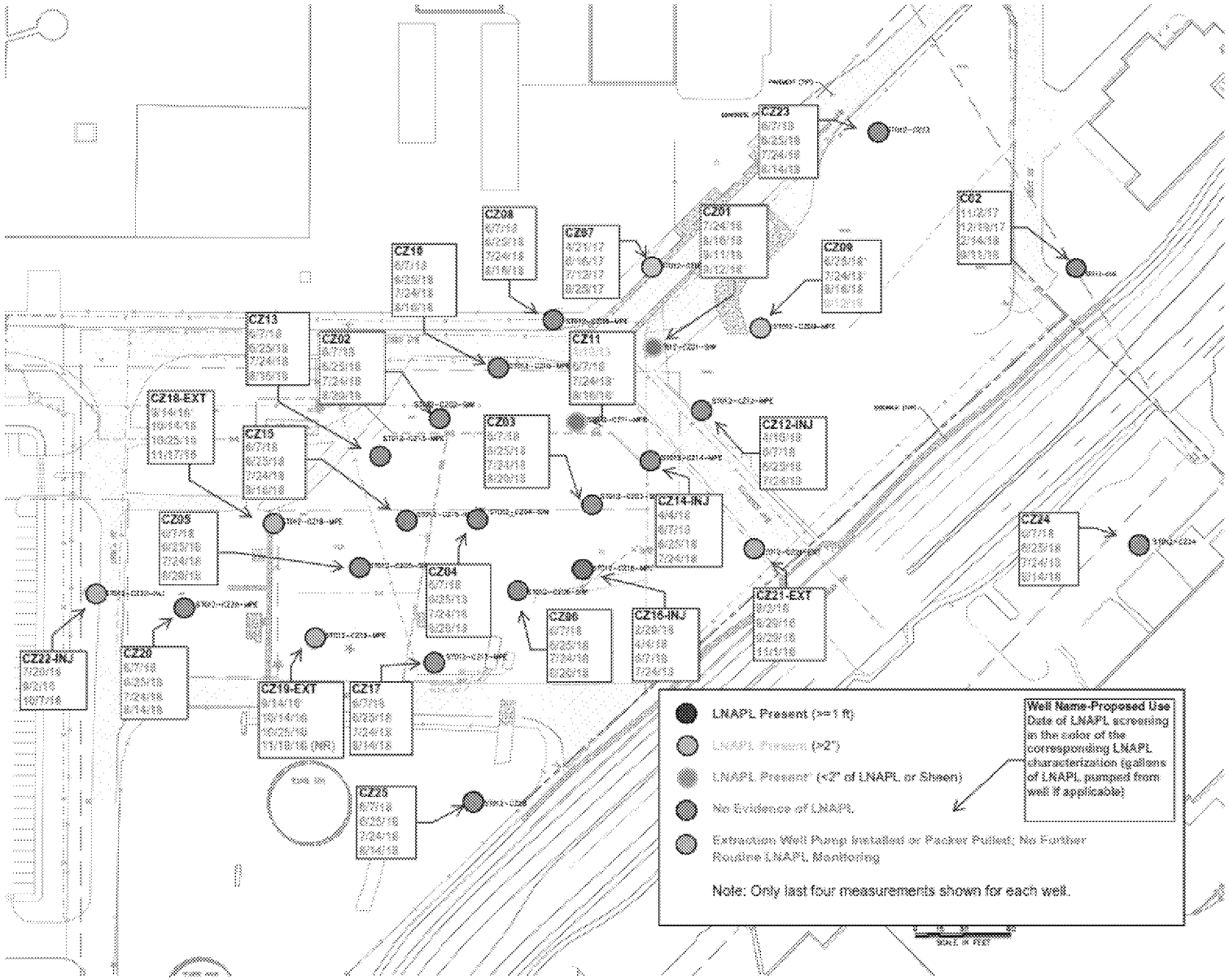




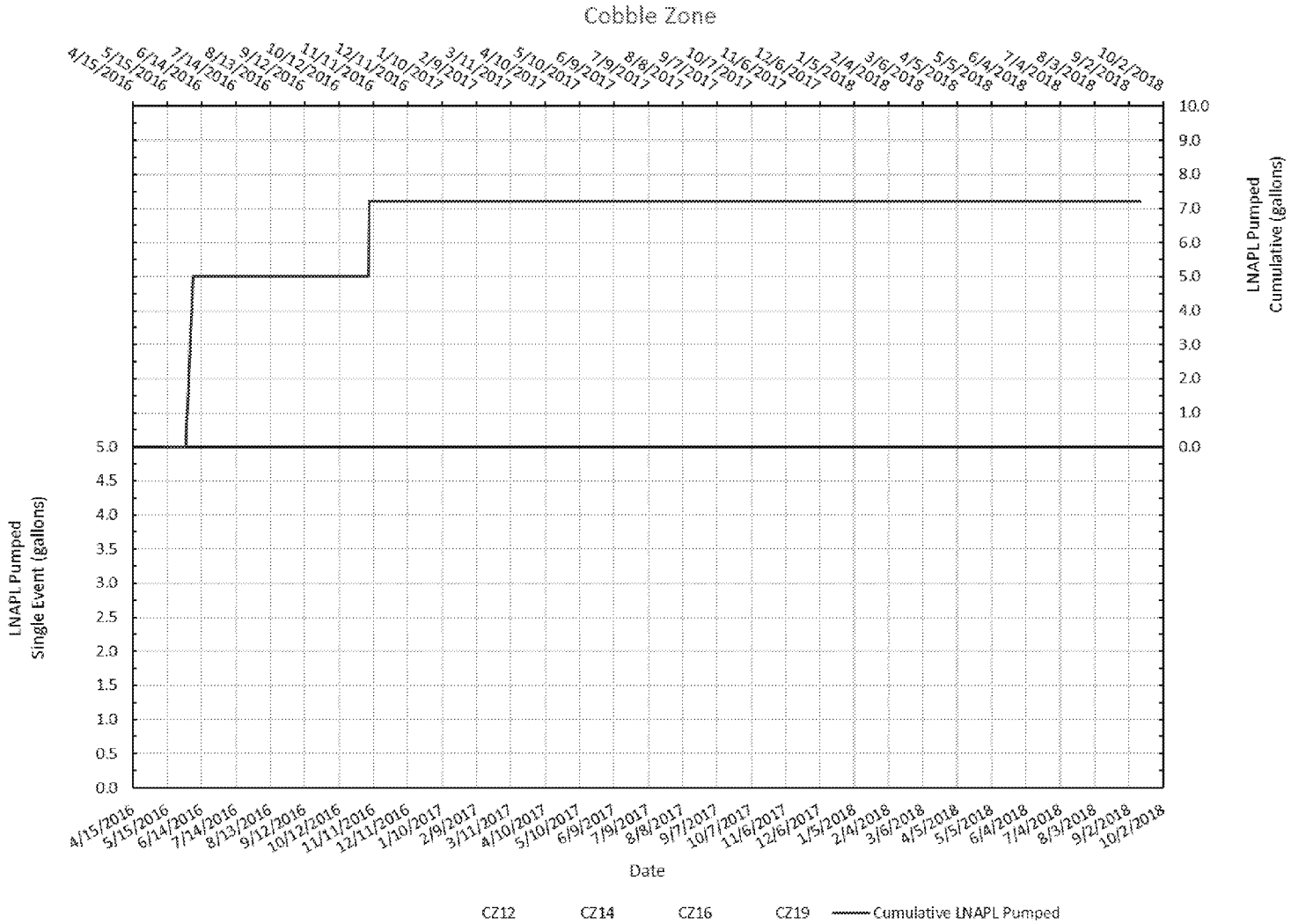
- Estimates through 27 Sep 2018.
- Estimated JP-4 degradation as methane is in addition to JP-4 removal reported for SVE
- Thermal oxidizer changed from SVE to groundwater treatment end of Apr
- Average Equivalent JP-4 Degraded since May-16 (end of SEE) ~20,000 pounds per month (~3,000 gallons per month)
- Recent equivalent JP-4 degraded ~10,000 pounds per month (~1,500 gallons per month)

LNAPL Monitoring Update (through 26 Sep)

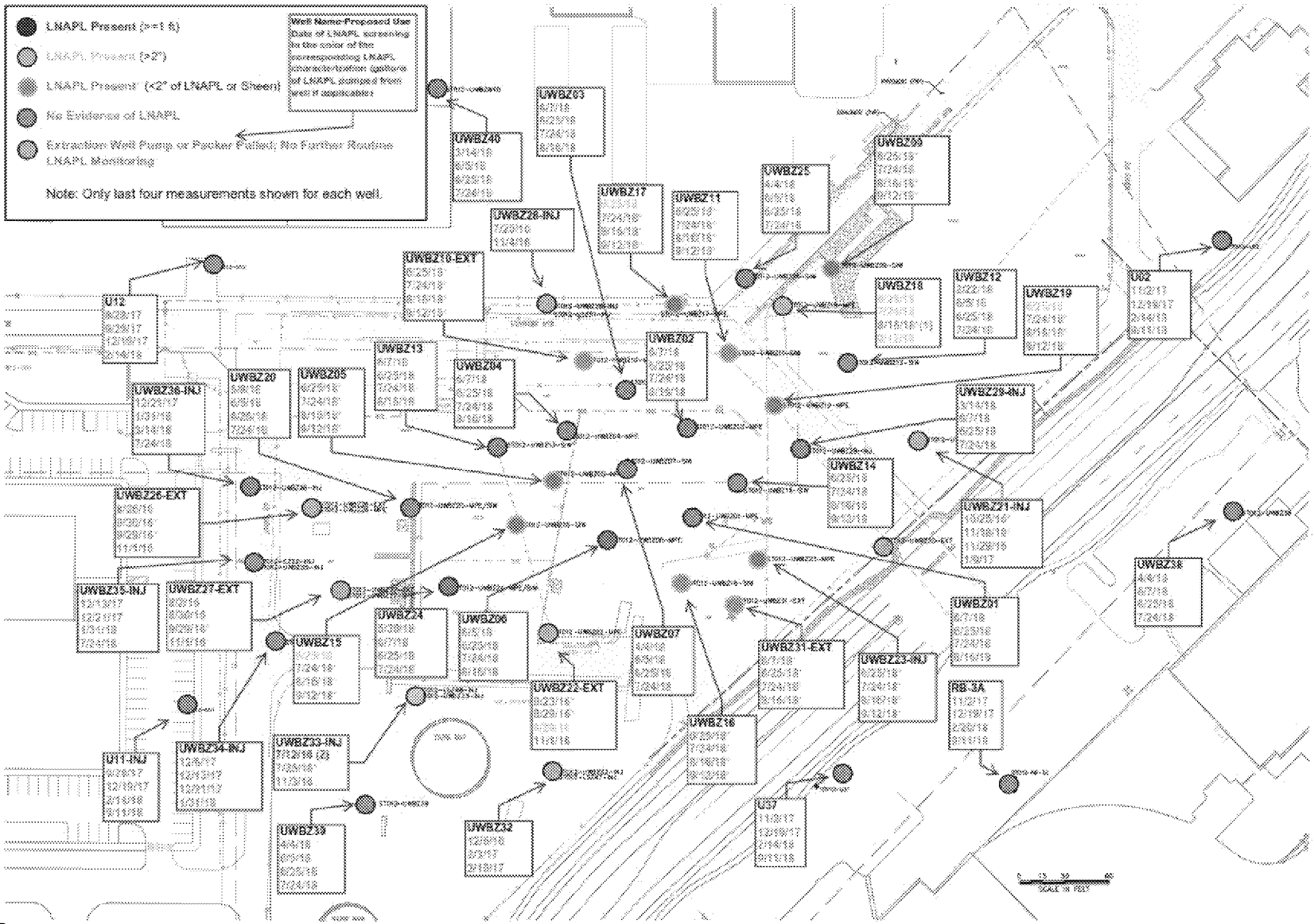
LNAPL Monitoring/Removal Status
Cobble Zone



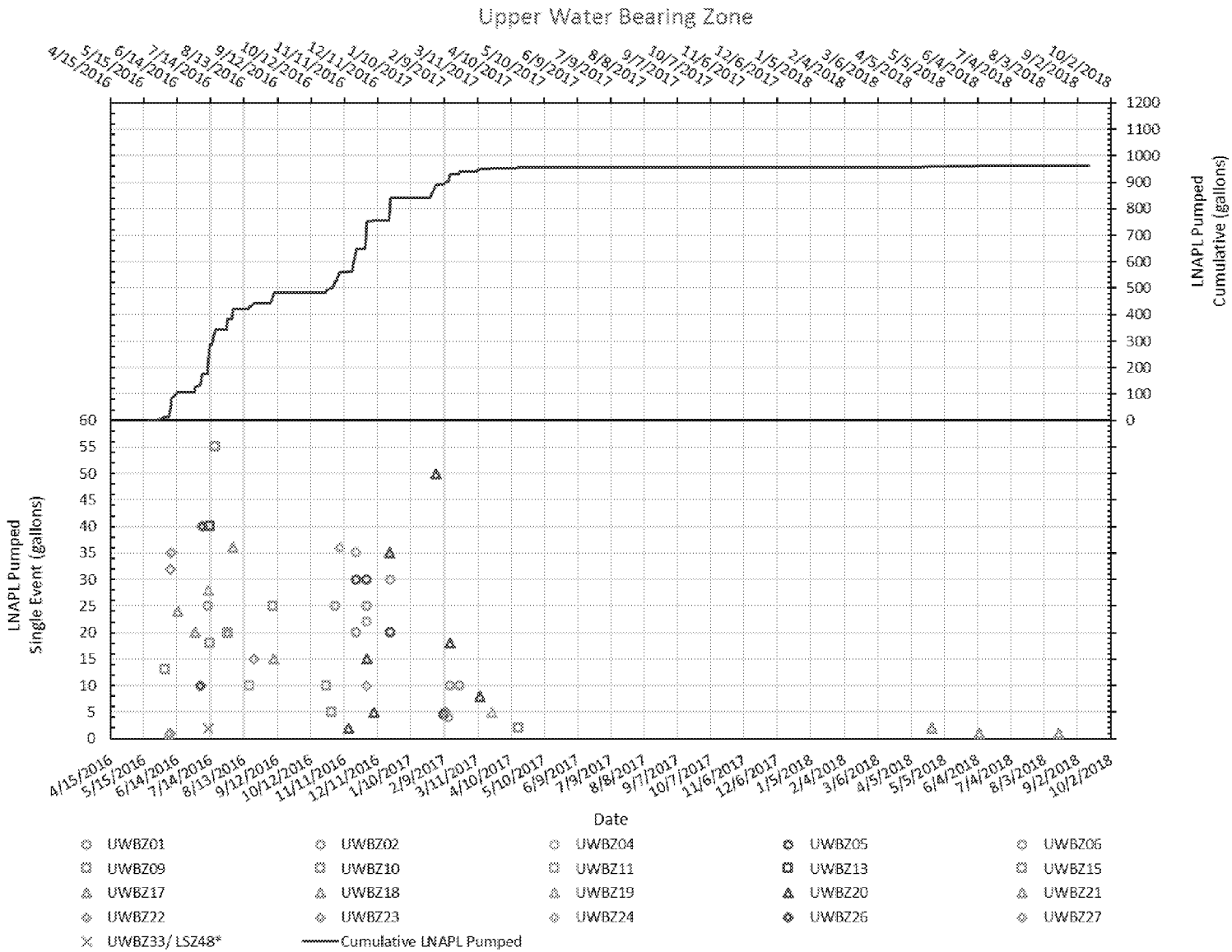
LNAPL Monitoring/Removal Status
Cobble Zone



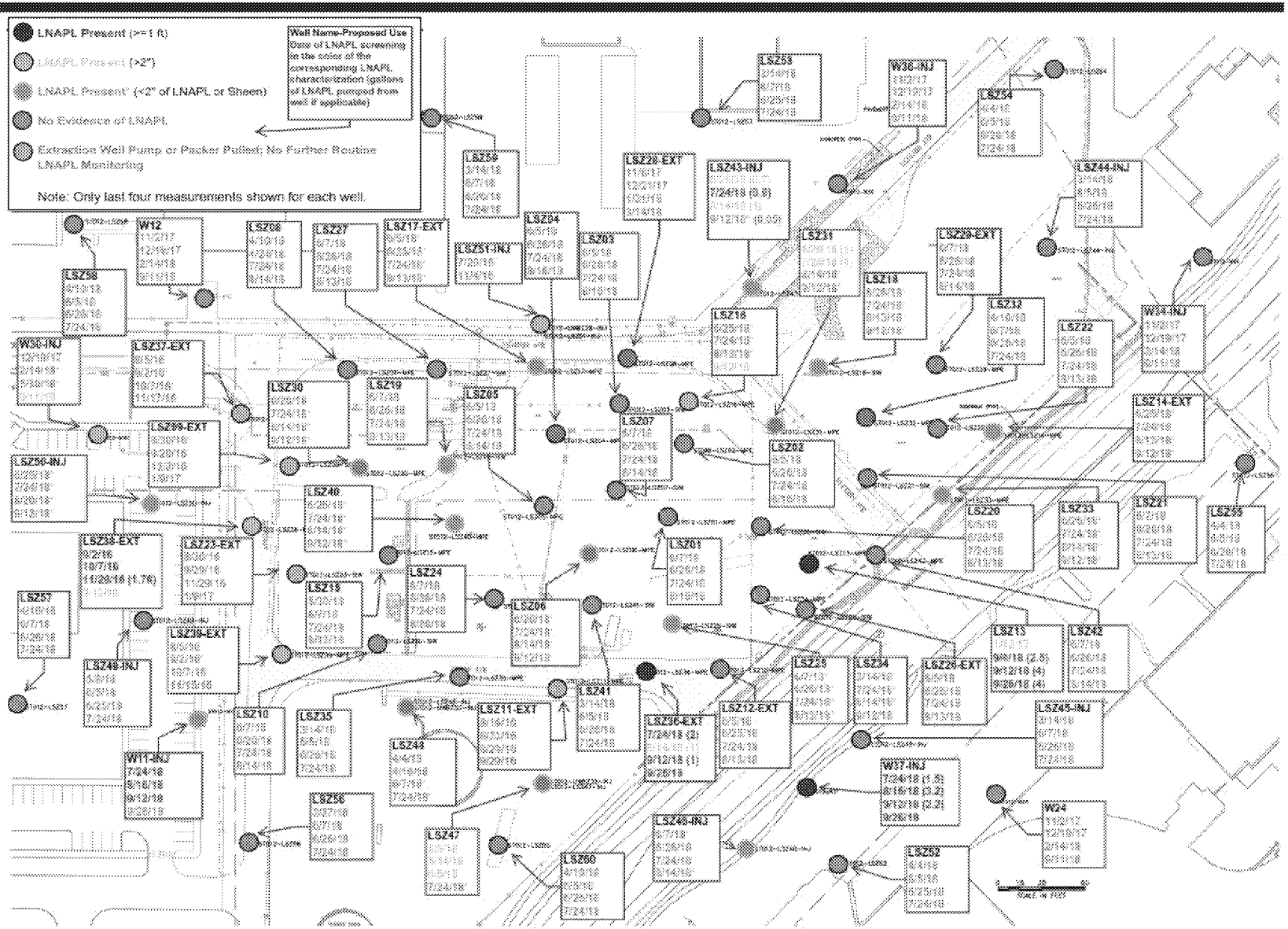
LNAPL Monitoring/Removal Status
Upper Water Bearing Zone



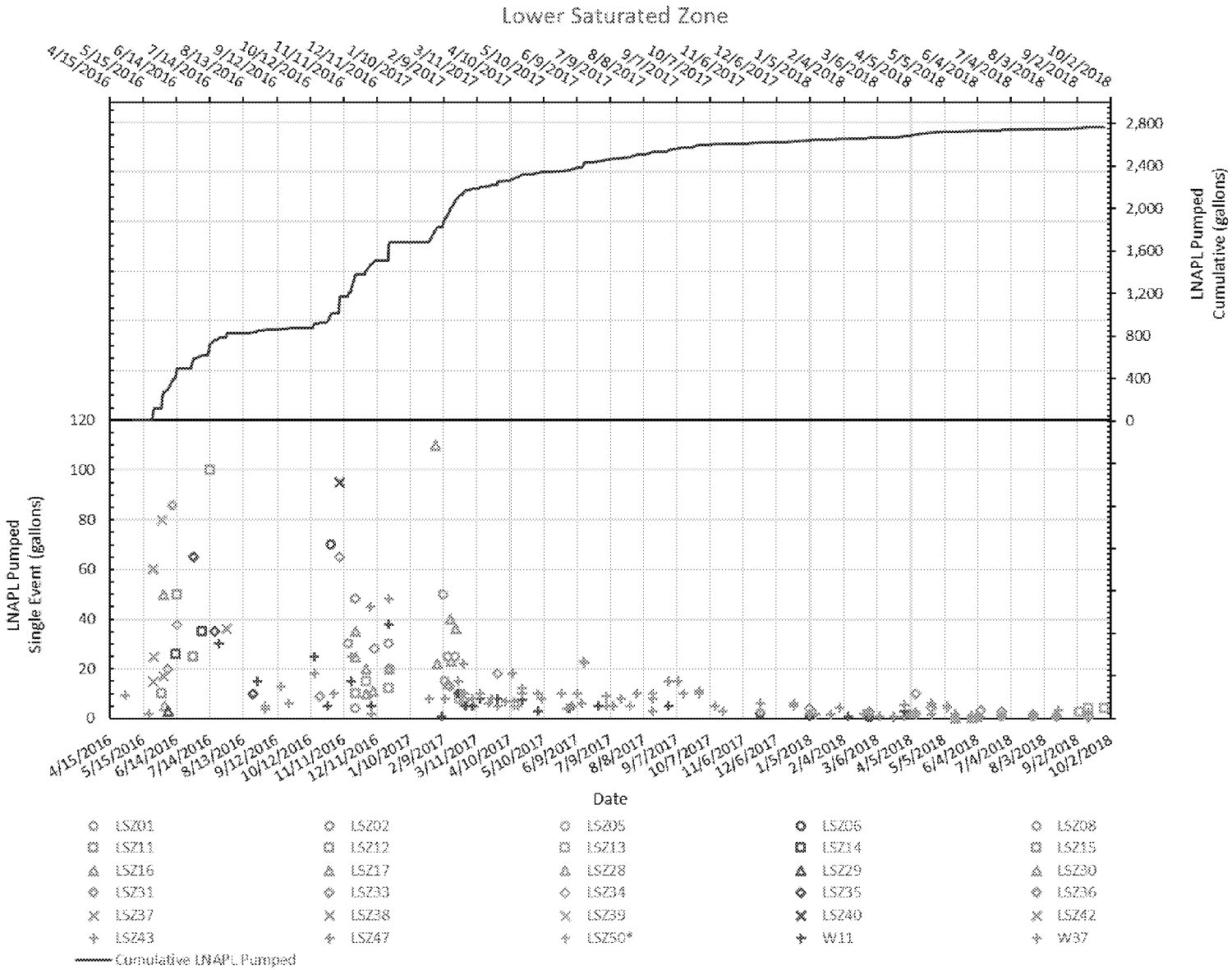
LNAPL Monitoring/Removal Status
Upper Water Bearing Zone



LNAPL Monitoring/Removal Status
Lower Saturated Zone

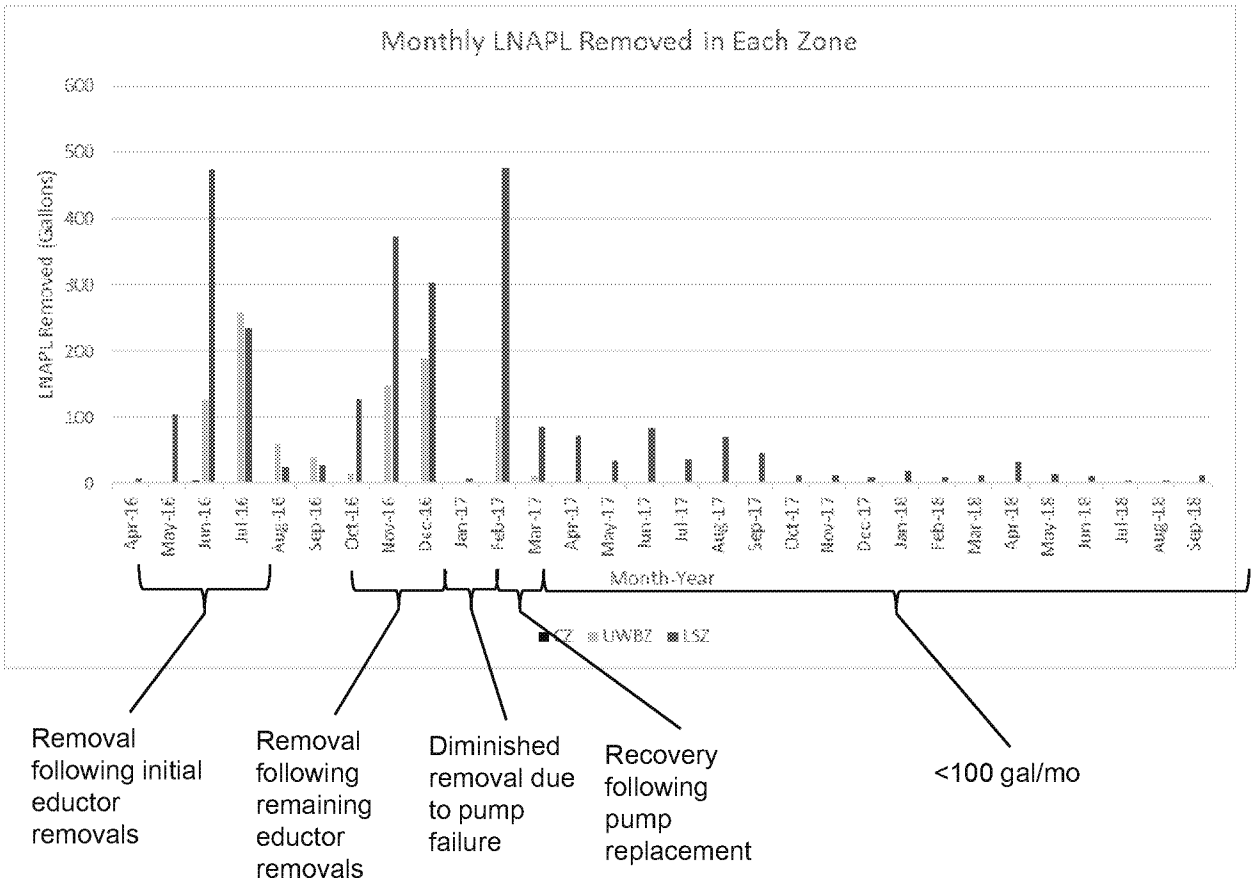


LNAPL Monitoring/Removal Status
Lower Saturated Zone



ST012 LNAPL Monitoring/Removal Summary

- **CZ – 7 gallons of LNAPL removed. None since Nov 2016**
- **UWBZ - 962 gallons of LNAPL removed. None removed since Sep update**
- **LSZ - 2,765 gallons of LNAPL removed. 11 gallons removed since Sep update (W37, LSZ13, LSZ36, LSZ43).**



Site ST012 Activities Oct-Nov

- Continued SVE operation
- Continued monthly CZ23 sampling
- Pilot Study Implementation
  - Pending resolution of containment/characterization discussions

Review of Bio Data

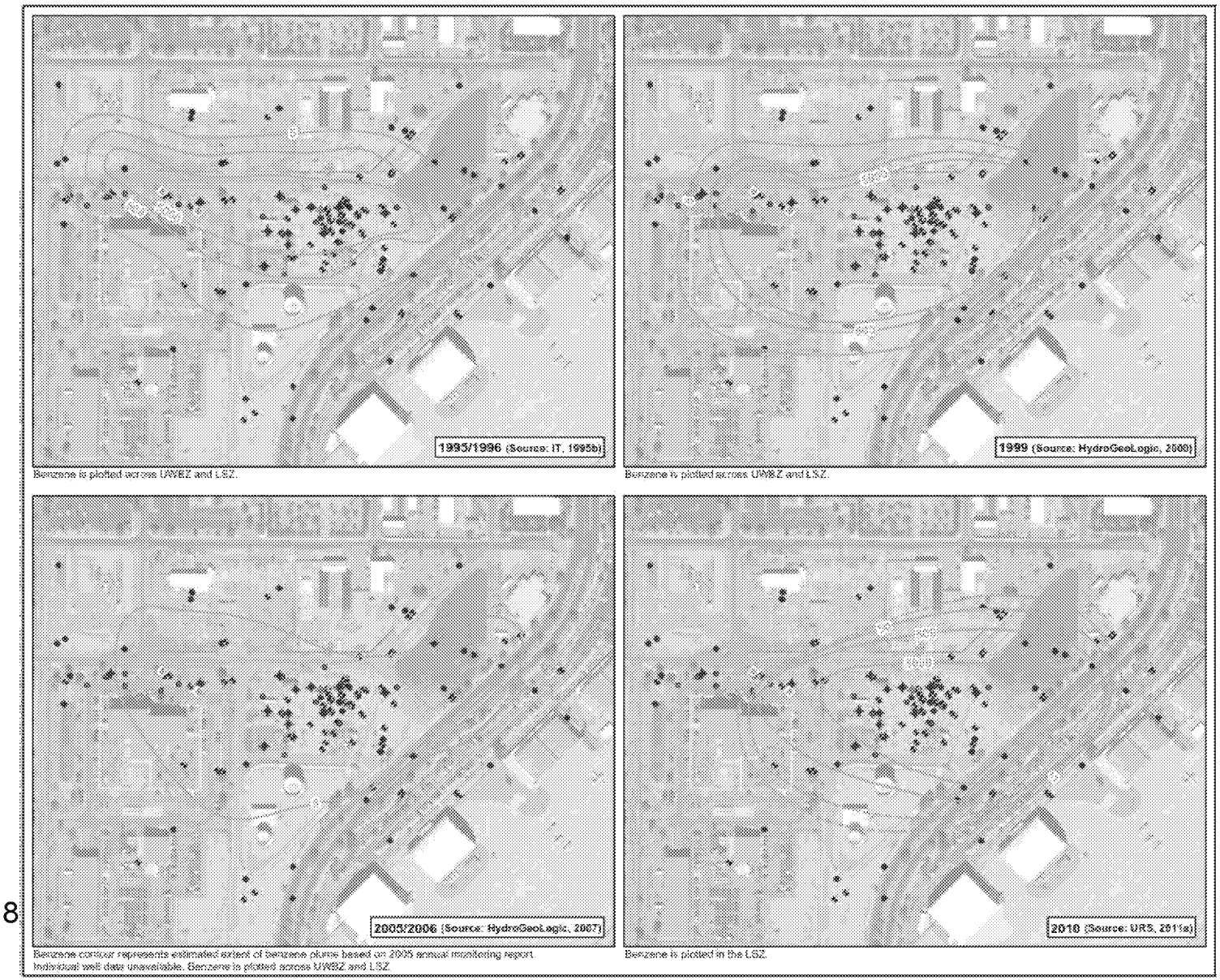
Site ST012 Summary of Data Supporting Bioactivity

- Stability of the benzene plume
- Depletion of TEAs and generation of byproducts
- Inverse correlations between nitrate-benzene and sulfate-benzene concentrations
- TEA flux at the site
- Demonstration of enhancement during EBR push-pull test

Site ST012 Benzene Plume Over Time

- Extent of benzene plume is not changing significantly over time
- Groundwater velocities (CZ>150 ft/yr, UWBZ≈25 ft/yr, LSZ≈70 ft/yr) would suggest a much larger downgradient plume if attenuation including biological mechanisms was not occurring

Site ST012 Historical Pre-SEE Benzene in UWBZ/LSZ



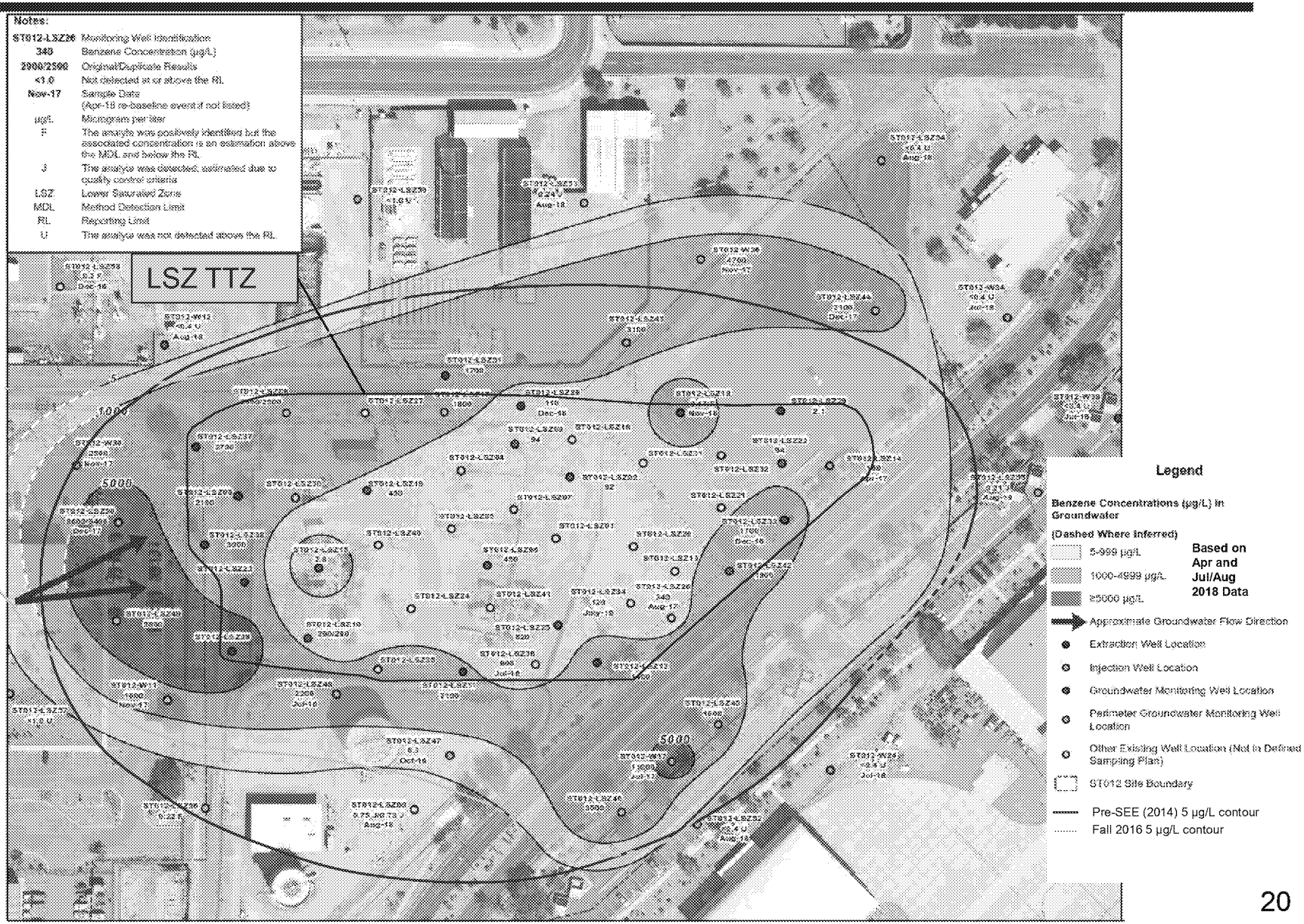
Benzene is plotted across UWBZ and LSZ.

Benzene is plotted across UWBZ and LSZ.

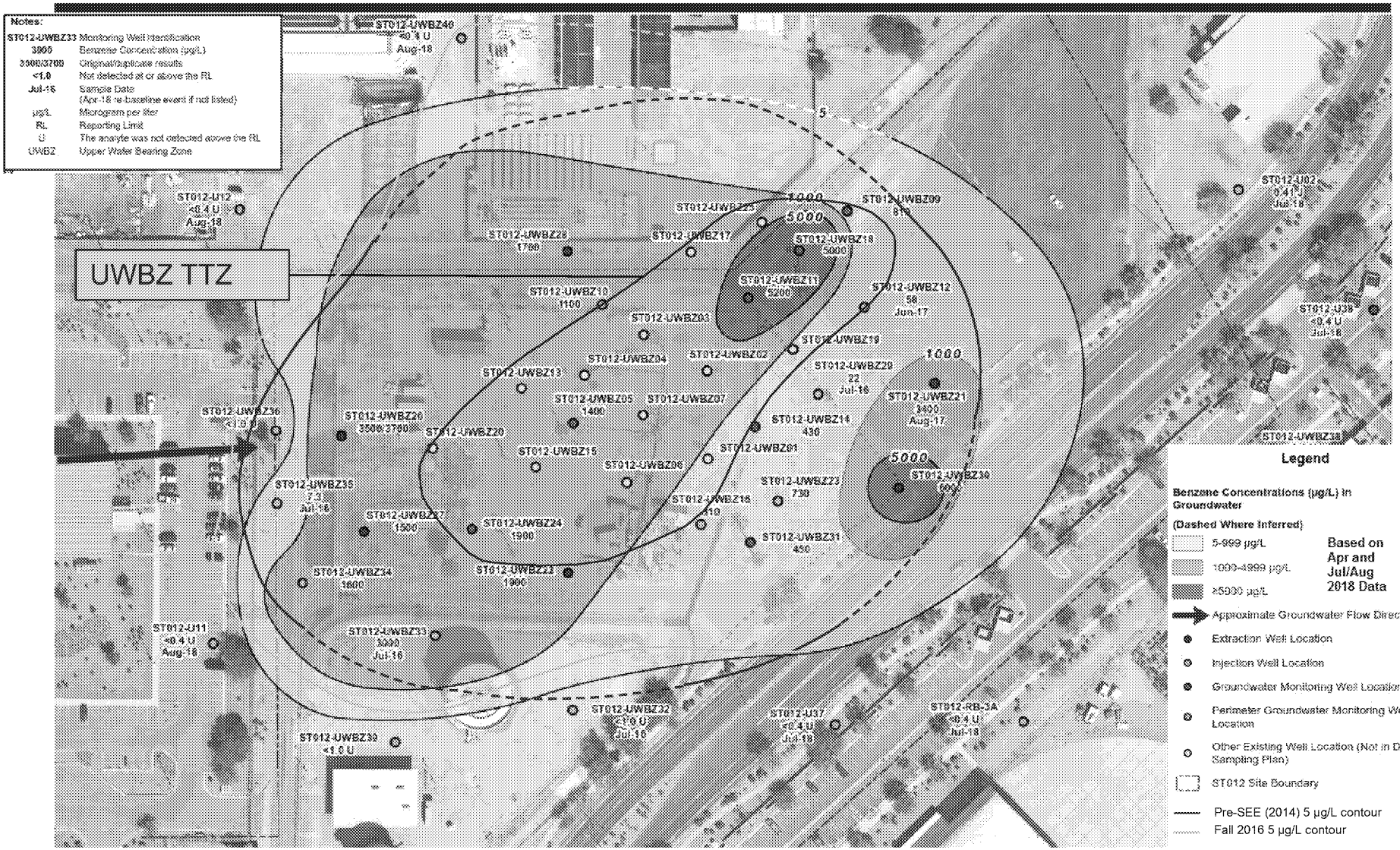
Benzene contour represents estimated extent of benzene plume based on 2005 annual monitoring report. Individual well data unavailable. Benzene is plotted across UWBZ and LSZ.

Benzene is plotted in the LSZ.

Site ST012 Pre-SEE/Post SEE Benzene (5 µg/L) Extent in LSZ

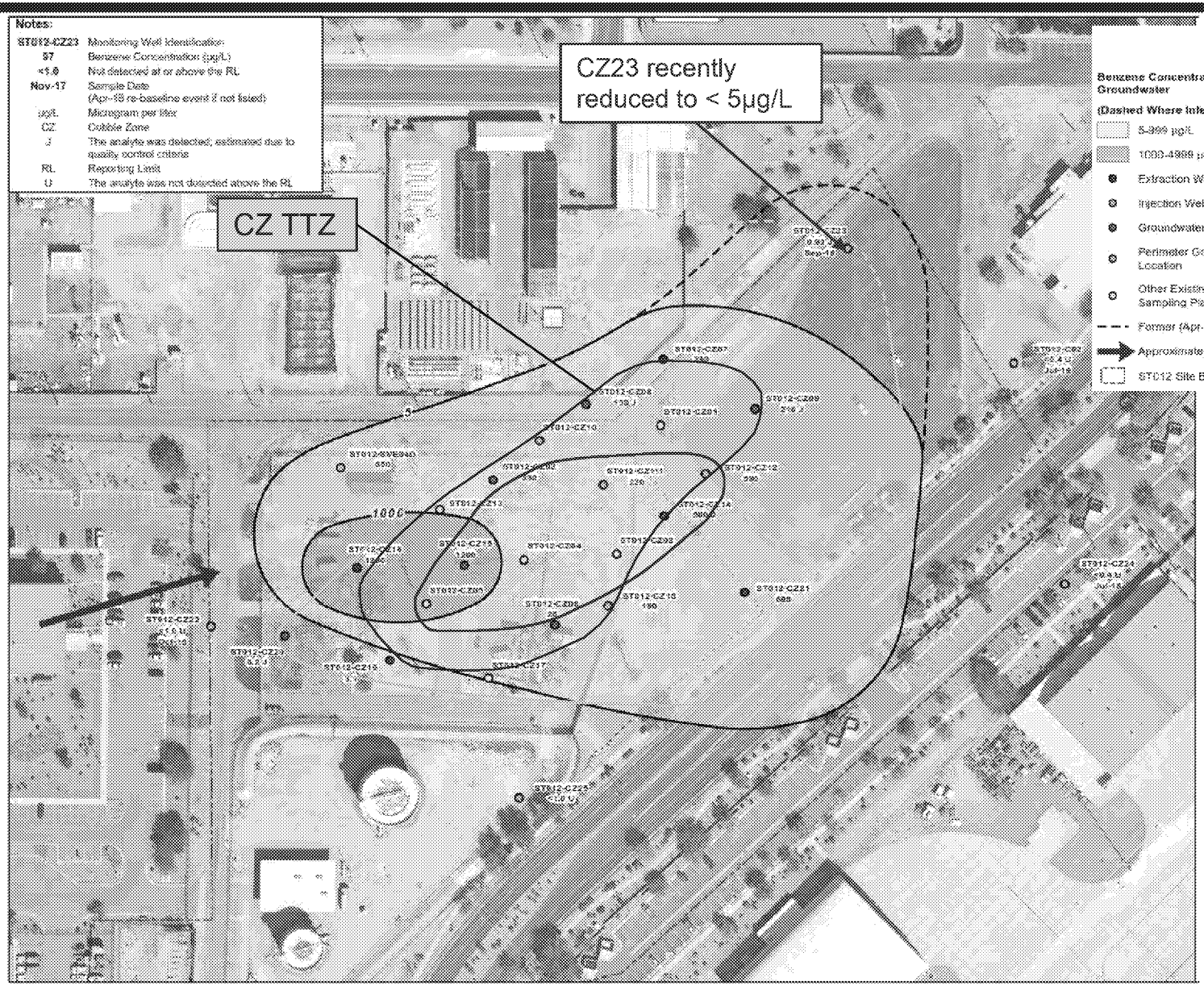


Site ST012 Pre-SEE/Post SEE Benzene (5 µg/L) Extent in UWBZ



10/15/2018

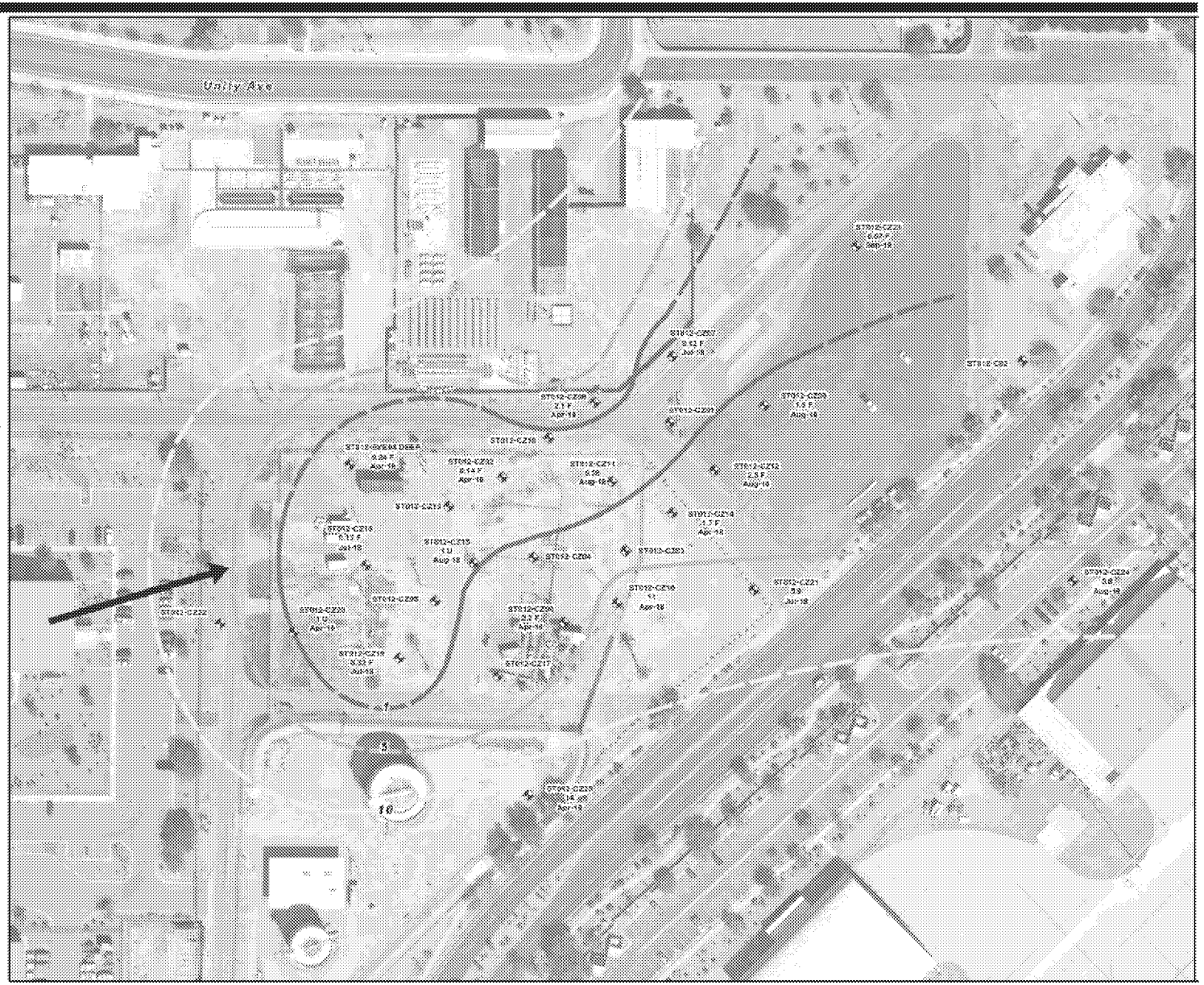
Site ST012 Pre-SEE/Post SEE Benzene (5 µg/L) Extent in CZ



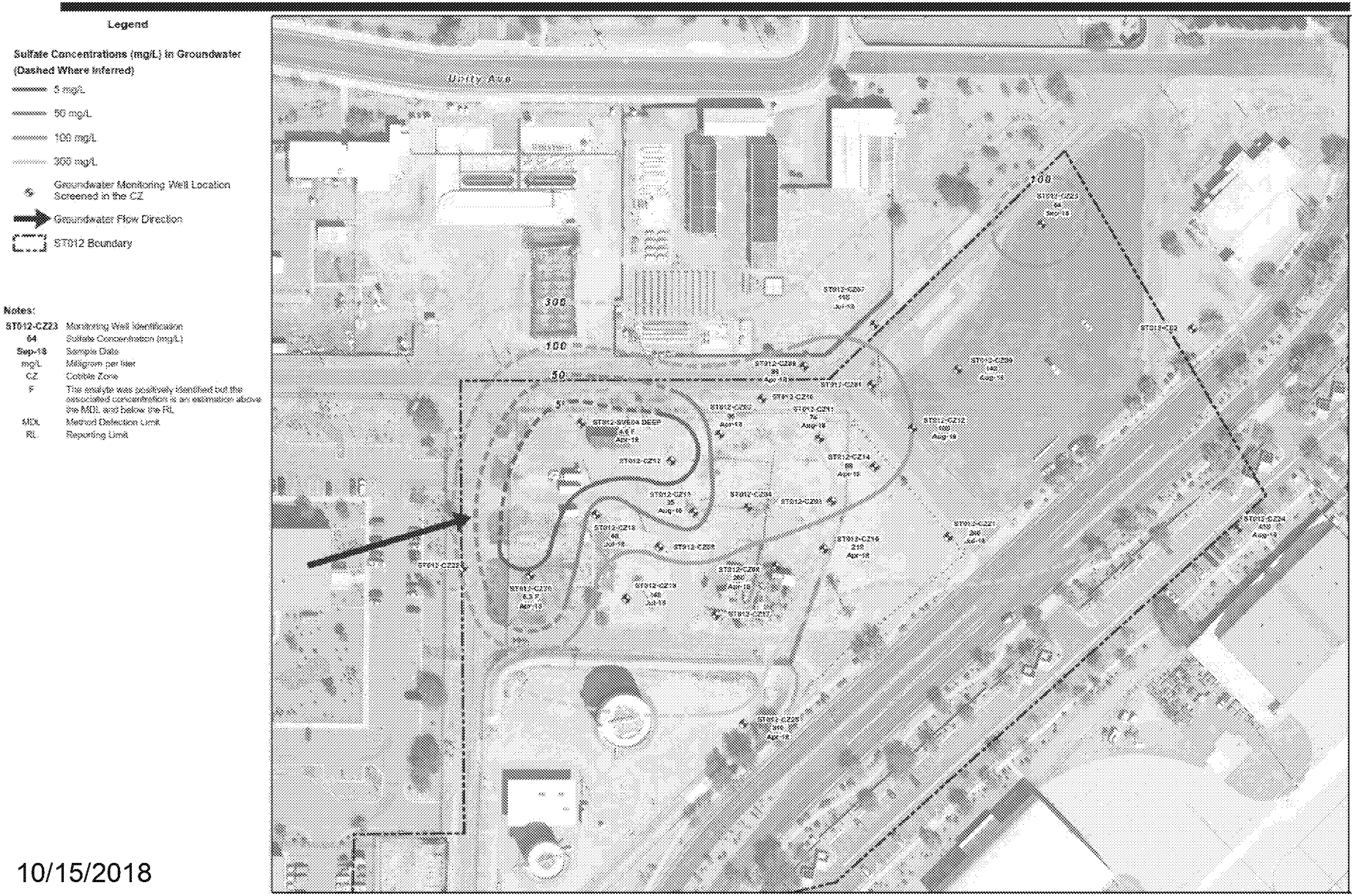
Site ST012 Depletion of TEAs

- Nitrate and sulfate are depleted in known JP-4/benzene contaminated areas relative to background (upgradient) nitrate and sulfate concentrations
- Depleted nitrate and sulfate concentrations correspond with high benzene concentrations
- Overall nitrate and sulfate concentrations are statistically inversely correlated with benzene concentrations

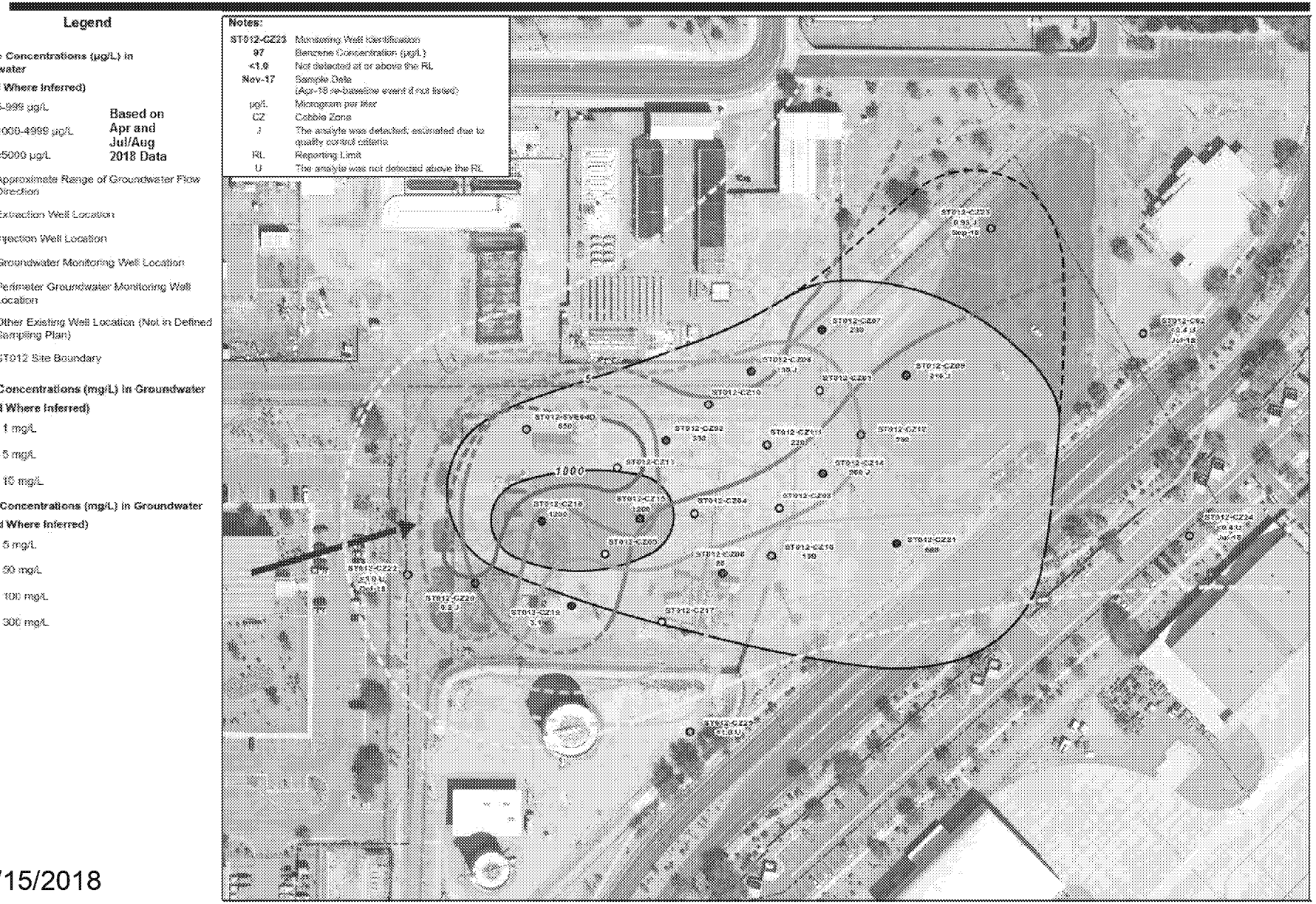
Site ST012 Nitrate in CZ



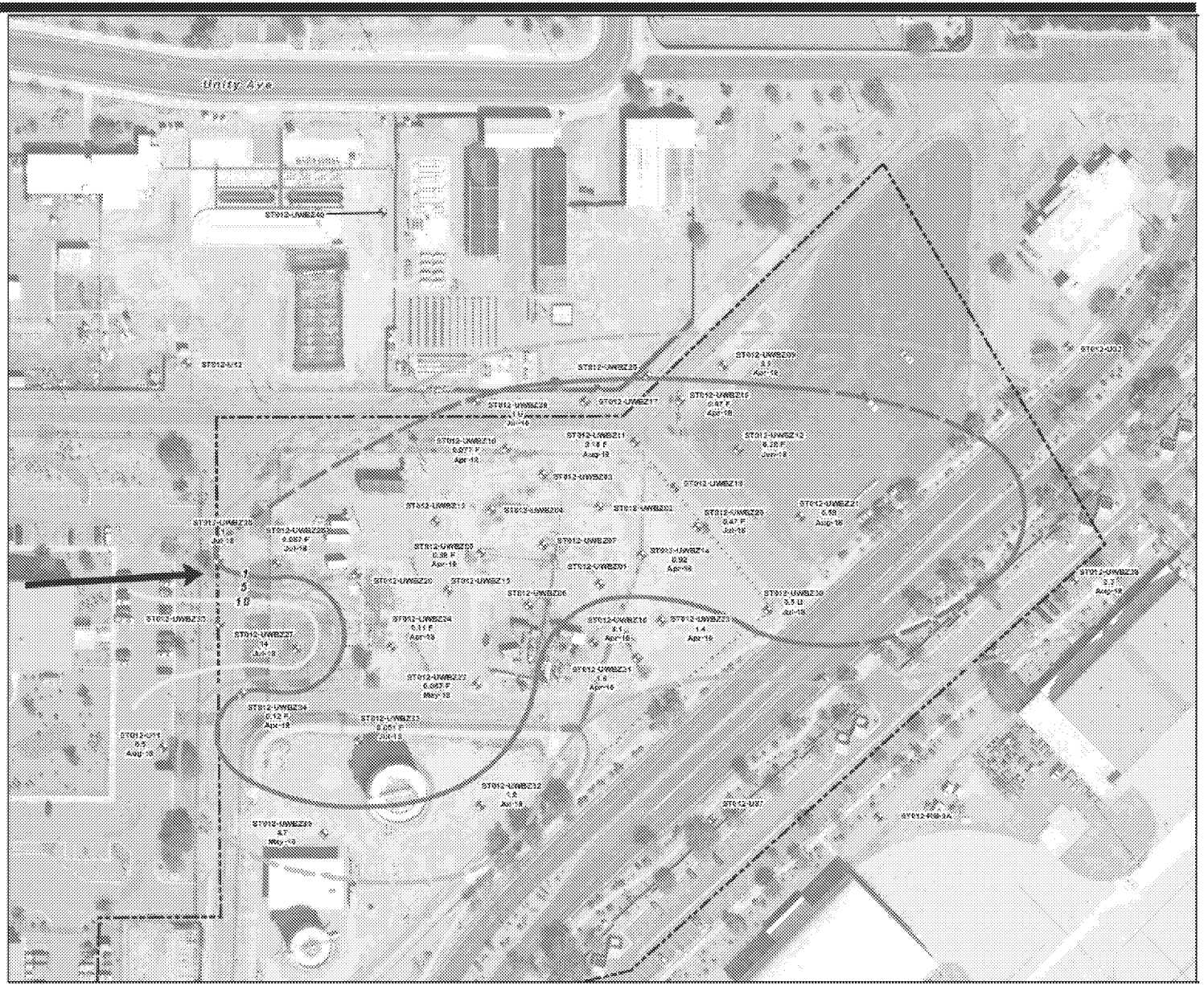
Site ST012 Sulfate in CZ



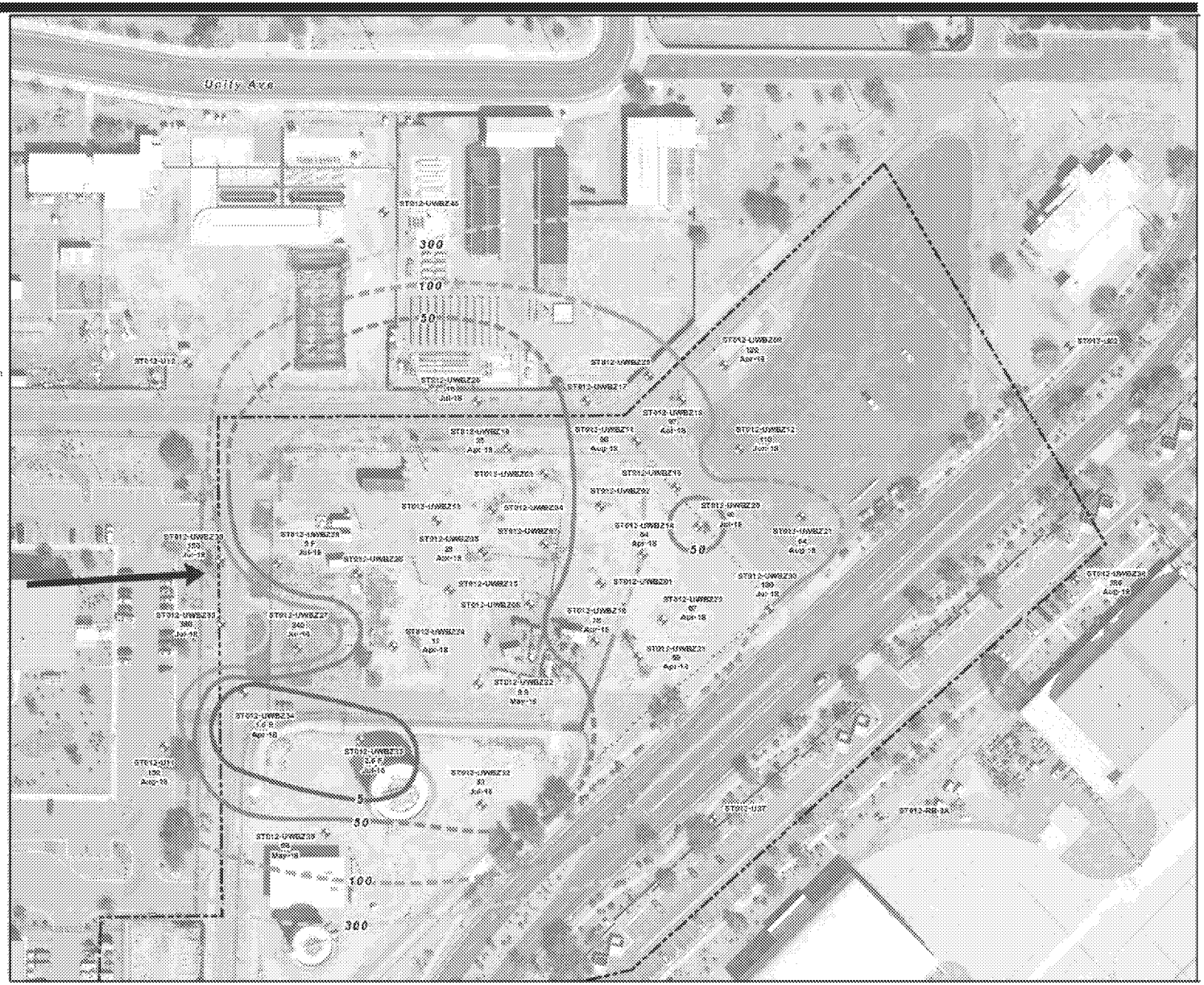
Site ST012 Sulfate, Nitrate and Benzene in CZ



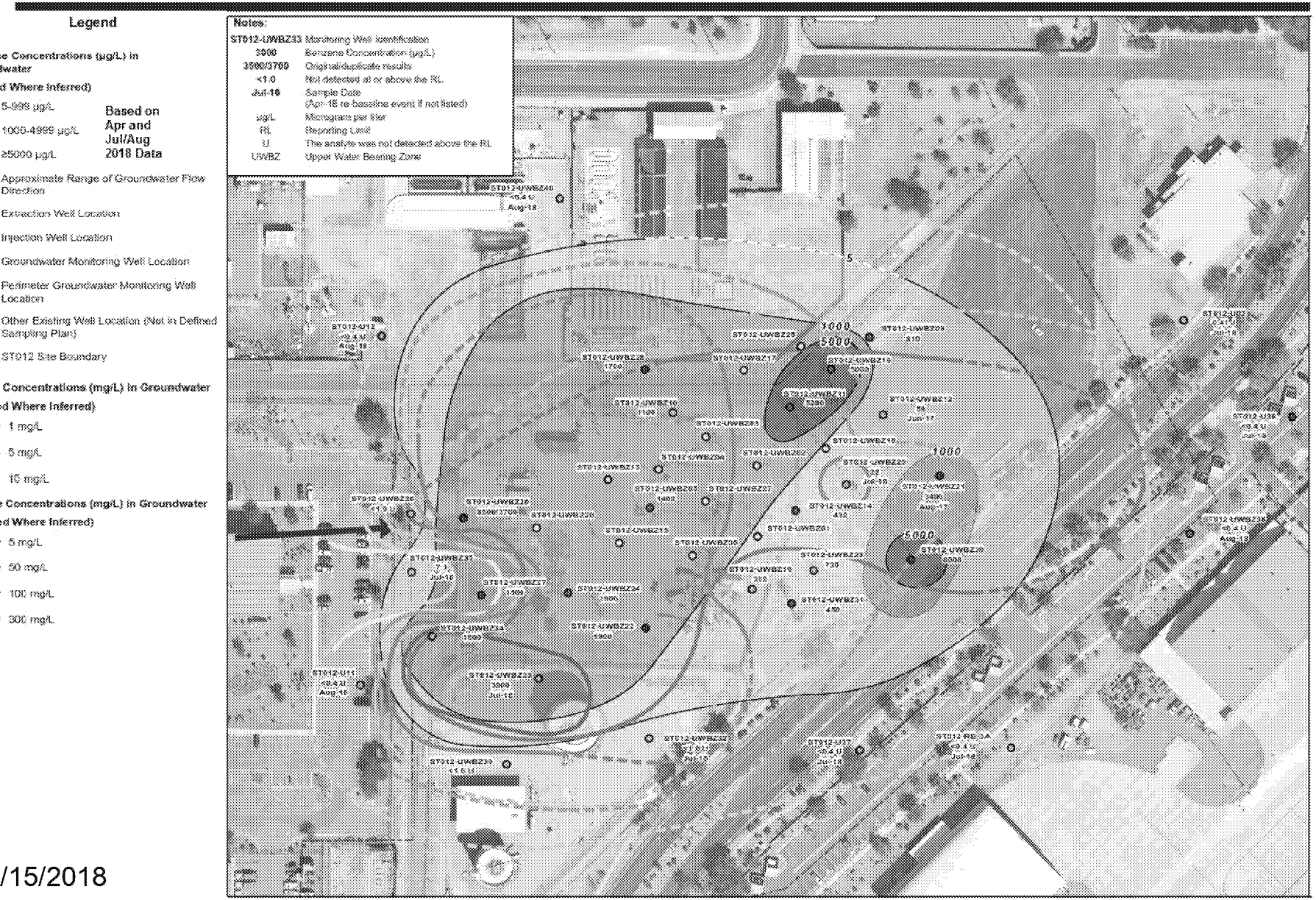
Site ST012 Nitrate in UWBZ



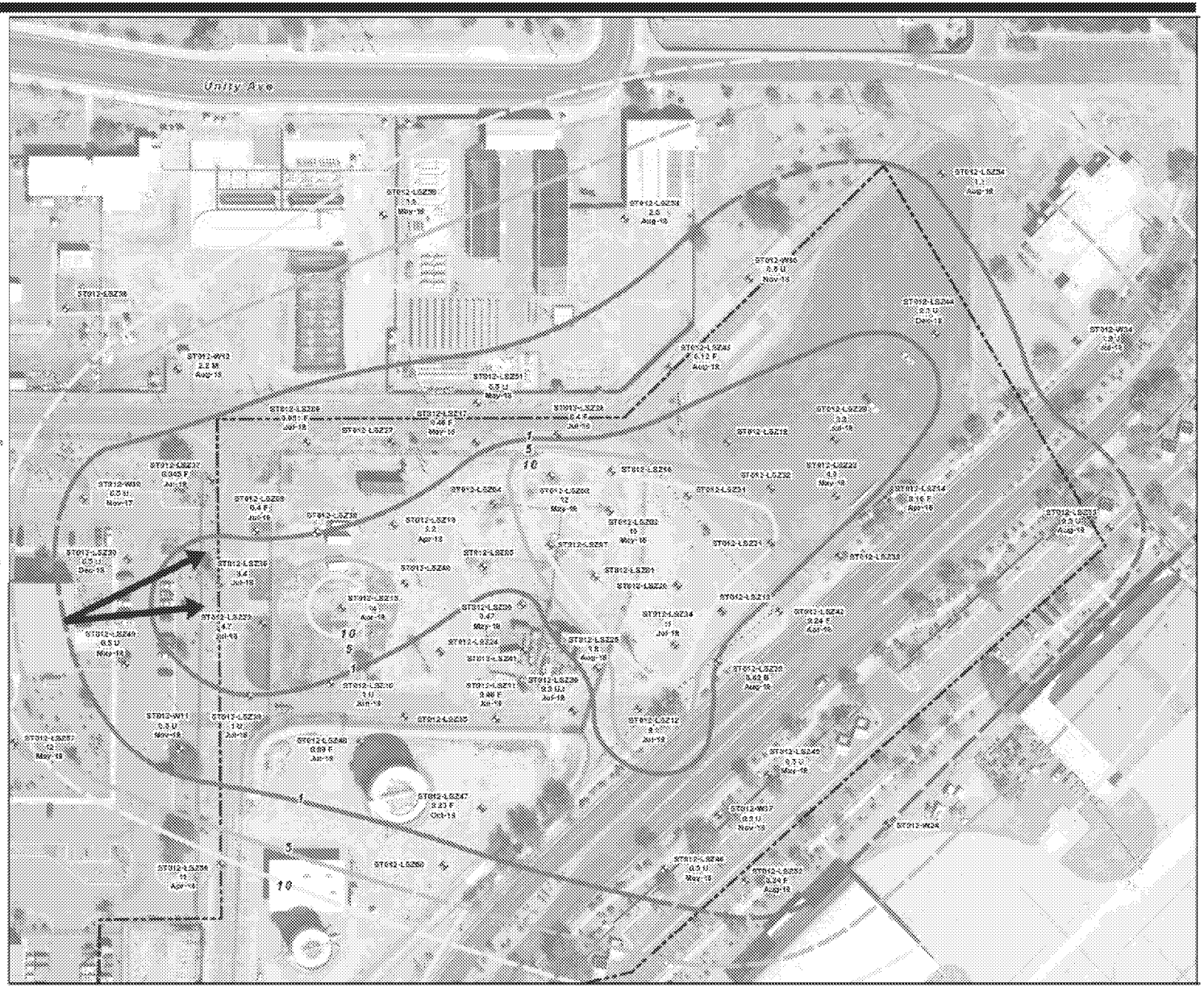
Site ST012 Sulfate in UWBZ



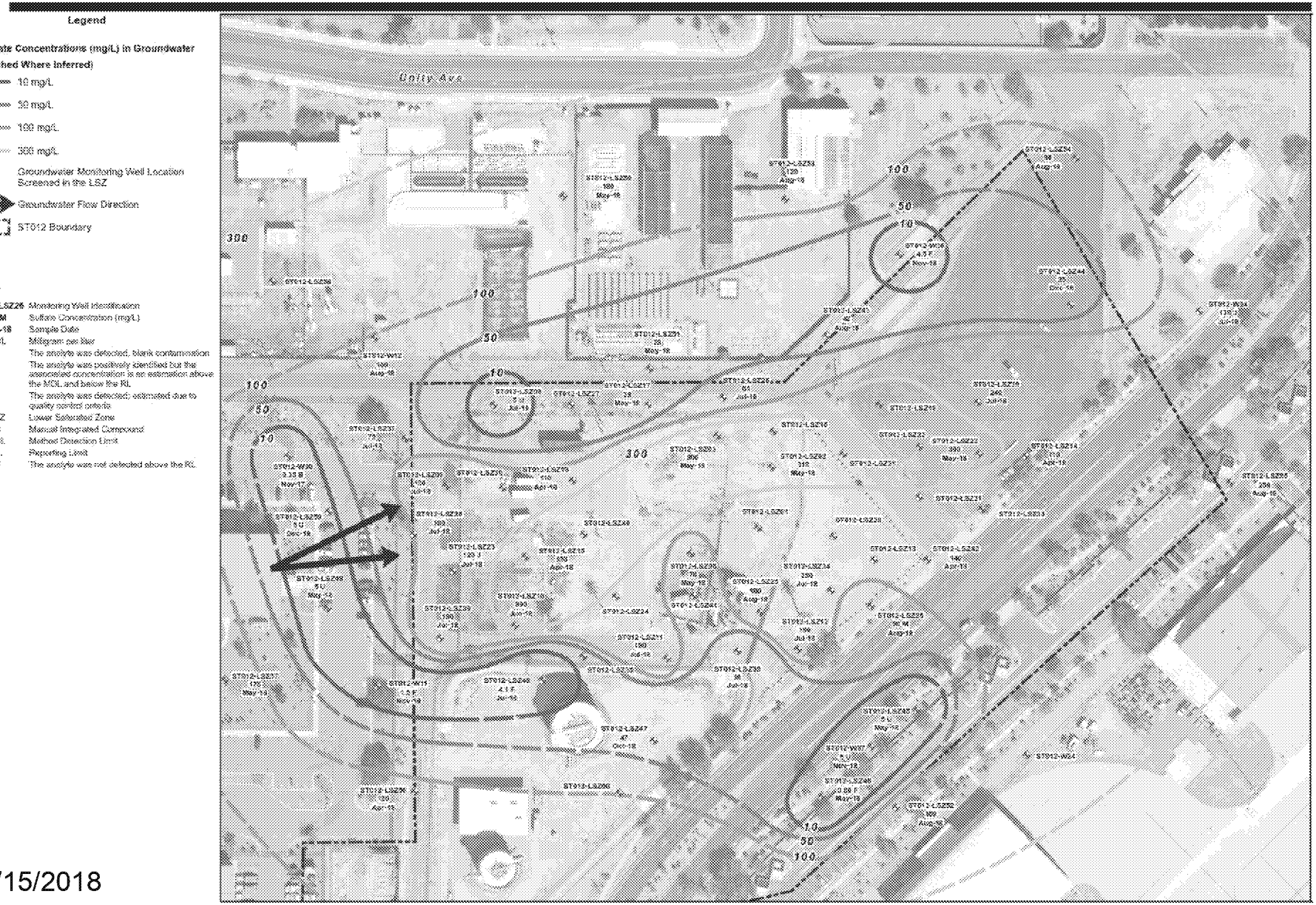
Site ST012 Sulfate, Nitrate and Benzene in UWBZ



Site ST012 Nitrate in LSZ



Site ST012 Sulfate in LSZ



Site ST012 Sulfate, Nitrate and Benzene in CZ

Legend

Benzene Concentrations (µg/L) in Groundwater

(Dashed Where Inferred)

- 5-999 µg/L
- 1000-4999 µg/L
- ≥5000 µg/L

Based on Apr and Jul/Aug 2018 Data

- Approximate Range of Groundwater Flow Direction
- Extraction Well Location
- Injection Well Location
- Groundwater Monitoring Well Location
- Perimeter Groundwater Monitoring Well Location
- Other Existing Well Location (Not in Defined Sampling Plan)
- ST012 Site Boundary

Nitrate Concentrations (mg/L) in Groundwater

(Dashed Where Inferred)

- 1 mg/L
- 5 mg/L
- 10 mg/L

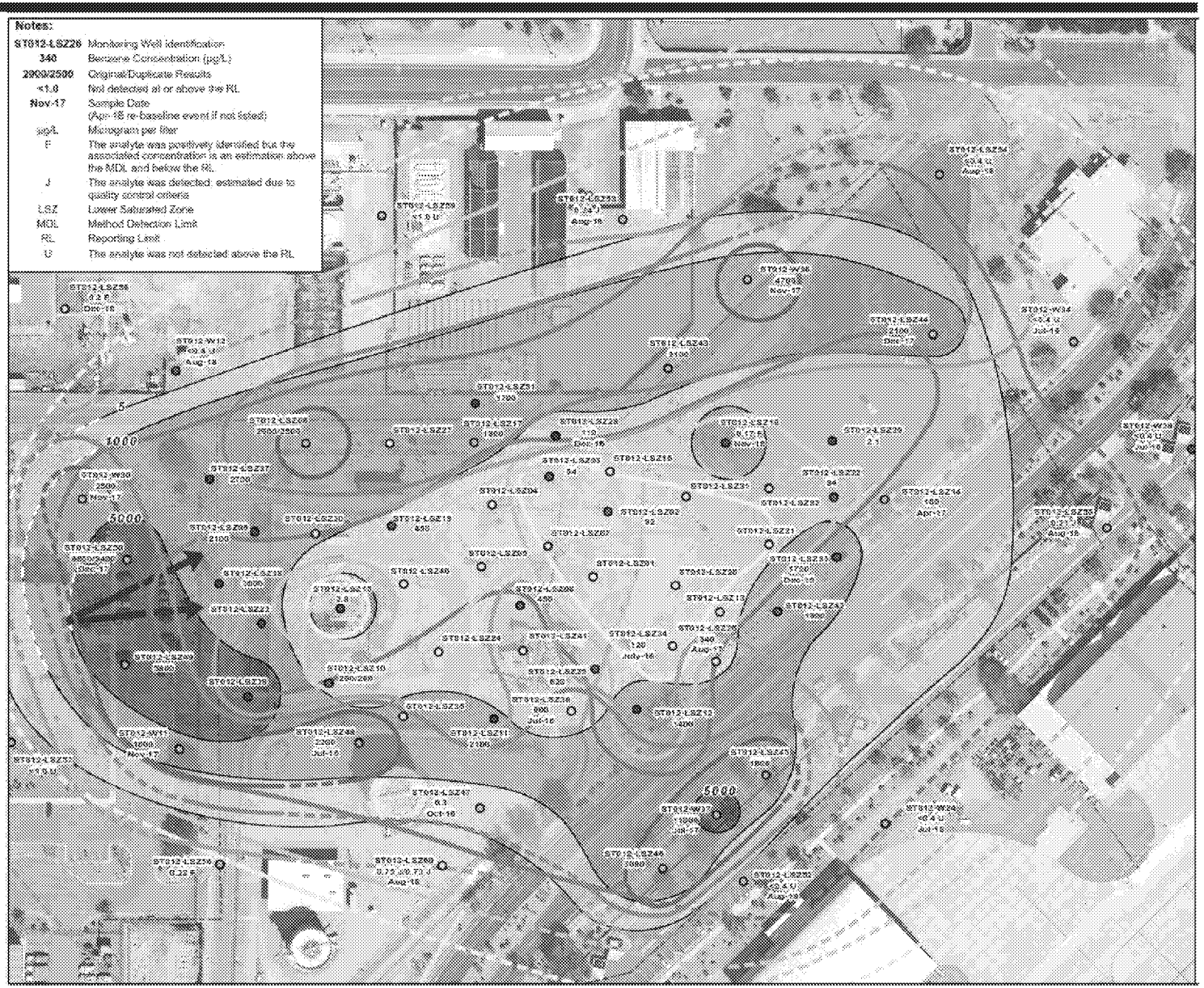
Sulfate Concentrations (mg/L) in Groundwater

(Dashed Where Inferred)

- 10 mg/L
- 30 mg/L
- 100 mg/L
- 300 mg/L

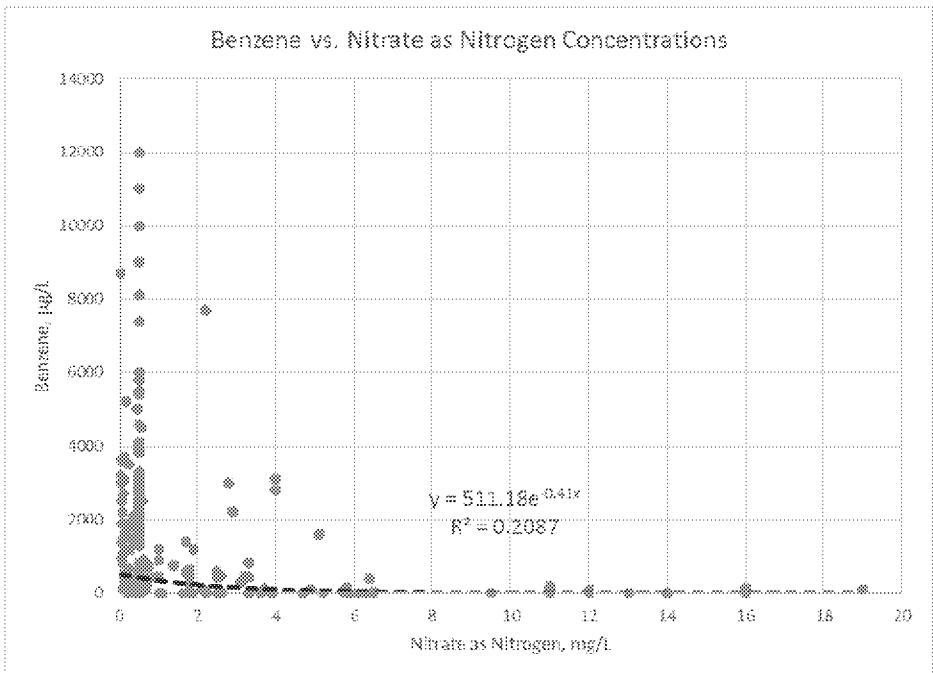
Notes:

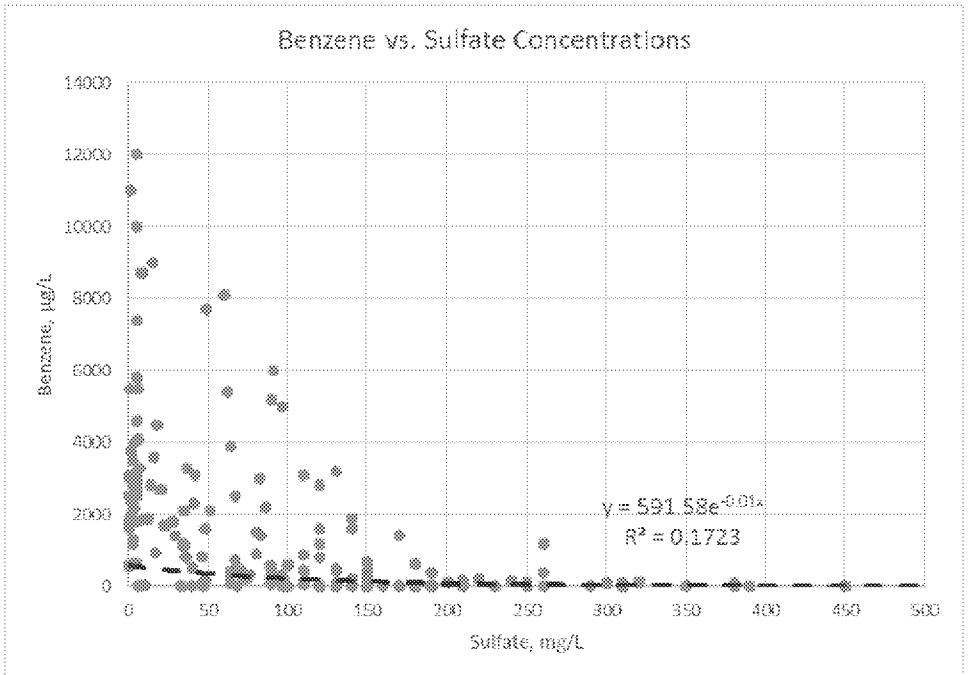
ST012-LSZ26	Monitoring Well Identification
340	Benzene Concentration (µg/L)
2900/2500	Original/Duplicate Results
<1.0	Not detected at or above the RL
Nov-17	Sample Date (Apr-18 re-baseline event if not listed)
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
J	The analyte was detected; estimated due to quality control criteria
LSZ	Lower Saturated Zone
MDL	Method Detection Limit
RL	Reporting Limit
U	The analyte was not detected above the RL



Site ST012 Regression Analysis

- **Overall nitrate and sulfate concentrations are statistically inversely correlated with benzene concentrations**
- **P values, a measure of correlation, are < 0.00003 (i.e., >99.997% probability that parameters are correlated; 95% [P<0.05] is typically considered significant correlation)**
- **R^2 values (0.21 and 0.17) , a measure of how well variability in the data is explained by the trendline equation, indicate significant variability (R^2=1 is ideal prediction)**





Site ST012 TEA Flux

- **Background TEA concentrations**
  - Dissolved Oxygen (DO) ≈ 7 mg/L
  - Nitrogen as Nitrate (N-NO_3) ≈ 15 mg/L (≈66 mg/L Nitrate [NO_3])
  - Sulfate (SO_4) ≈ 300 mg/L
  - Solid-phase TEAs (e.g., iron and manganese) background are more difficult to quantify due to poor reliability in measuring different valence states and the effects of geochemical reactions.
- **Approximate utilization ratios for JP-4 (from TEE pilot report)**
  - 3 mg DO required : 1 mg JP-4 degraded
  - 3.2 mg NO_3 required : 1 mg JP-4 degraded
  - 4 mg SO_4 required : 1 mg JP-4 degraded

Site ST012 TEA Flux

- **Relative JP-4 degradation capacity**
  - **DO: 7 mg/L / (3 mg DO / 1 mg JP-4) = 2.3 mg of JP-4 could be degraded by the DO in 1 liter of groundwater entering ST012**
  - **NO_3: 66 mg/L / (3.2 mg NO_3 / 1 mg JP-4) = 21 mg of JP-4 could be degraded by the NO_3 in 1 liter of groundwater entering ST012**
    - Background NO_3 capacity is approximately 9x greater than DO capacity
  - **SO_4: 300 mg/L / (4 mg SO_4 / 1 mg JP-4) = 75 mg of JP-4 could be degraded by the SO_4 in 1 liter of groundwater entering ST012**
    - Background SO_4 capacity is approximately 3.6x greater than NO_3 capacity
    - Background SO_4 capacity is approximately 32x greater than DO capacity

Site ST012 TEA Flux

- JP-4 degradation capacity by background TEA flux is low (100 to 1,000s lbs/year) relative to mass remaining on site
- Methanogenesis may be the current dominant biodegradation mechanism due to limits on TEA availability
  - currently >100,000 lbs/year equivalent JP-4 degraded based on methane collected at SVE
  - Methane collected at SVE is not definitively tied to specific zones (CZ, UWBZ, LSZ could all contribute)
  - Methane collected may not correlate with timing of when it was generated (although methane collection has been sustained for over two years)

Site ST012 Push-Pull Test

- **SRB populations increased 1 to 2 orders of magnitude during push-pull tests**
  - **ST012-W11 (cells/bead APS):**
    - Baseline: 3.76E+04
    - Post Shut-In: 6.49E+05
    - Post Extraction: 2.76E+06
  - **ST012-W30 (cells/bead APS):**
    - Baseline: 4.45E+04
    - Post Shut-In: 4.37E+04
    - Post Extraction: 2.00E+05
- **Estimated sulfate utilization rates were favorable and higher than the rates used in RD/RAWP modeling**

Site ST012 Summary of Data Supporting Bioactivity

- **Benzene plume has not changed significantly over the past 20+years**
- **Bacteria are active at the site based on TEA and byproduct concentrations**
  - **DO – reduced/depleted in some areas, but limited reliability of results for full analysis**
  - **NO3 – reduced/depleted in areas of known contamination**
  - **SO4 – reduced/depleted in areas of known contamination**
  - **Methane – sustained recovery at the site**

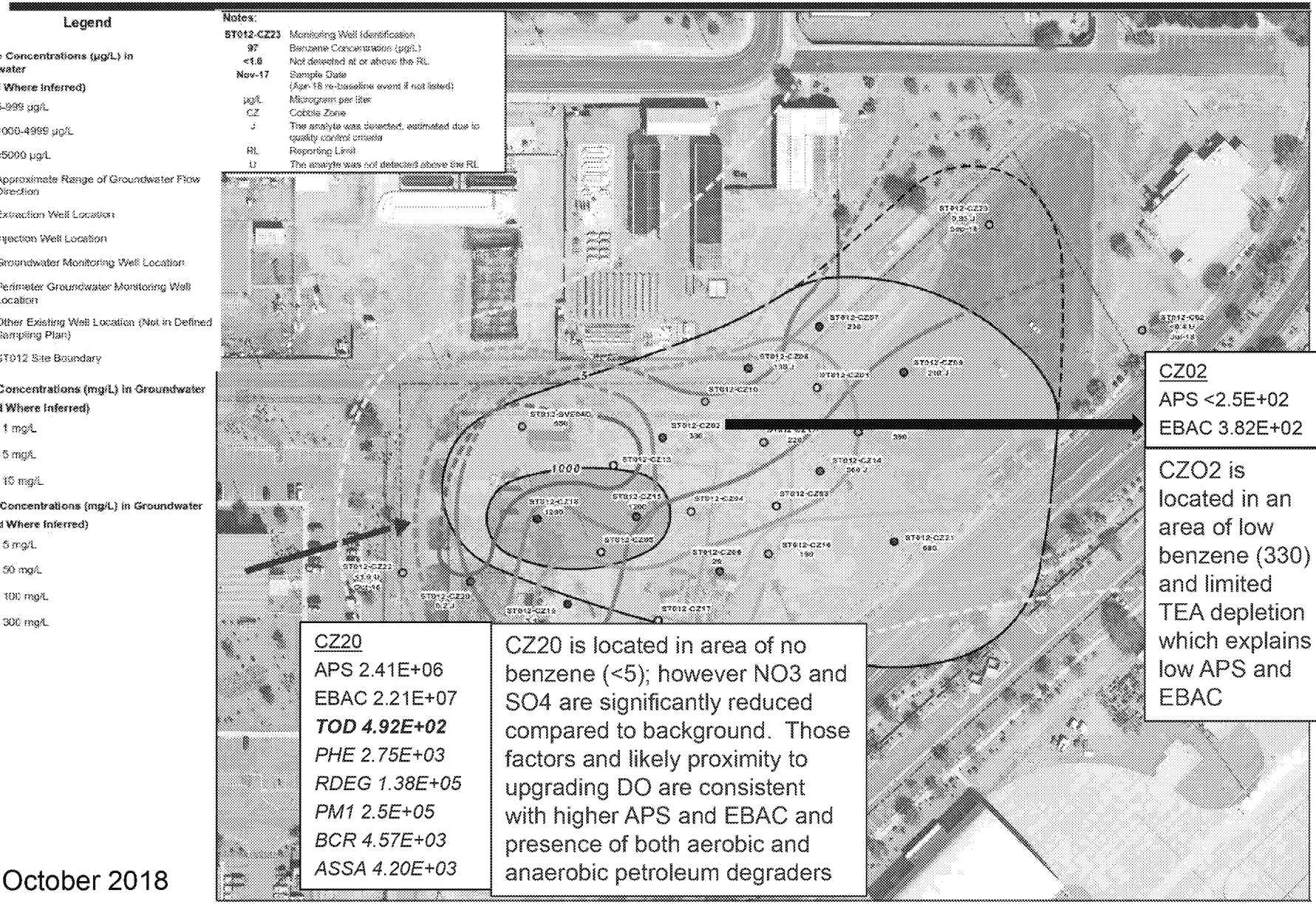
Site ST012 Summary of Data Supporting Bioactivity

- Nitrate-benzene and sulfate-benzene concentrations are inversely correlated spatially (low/depleted nitrate and sulfate where benzene concentrations are higher)
- Nitrate-benzene and sulfate-benzene concentrations are inversely correlated statistically
- EBR push-pull test demonstrated that SRB populations will respond to sulfate addition

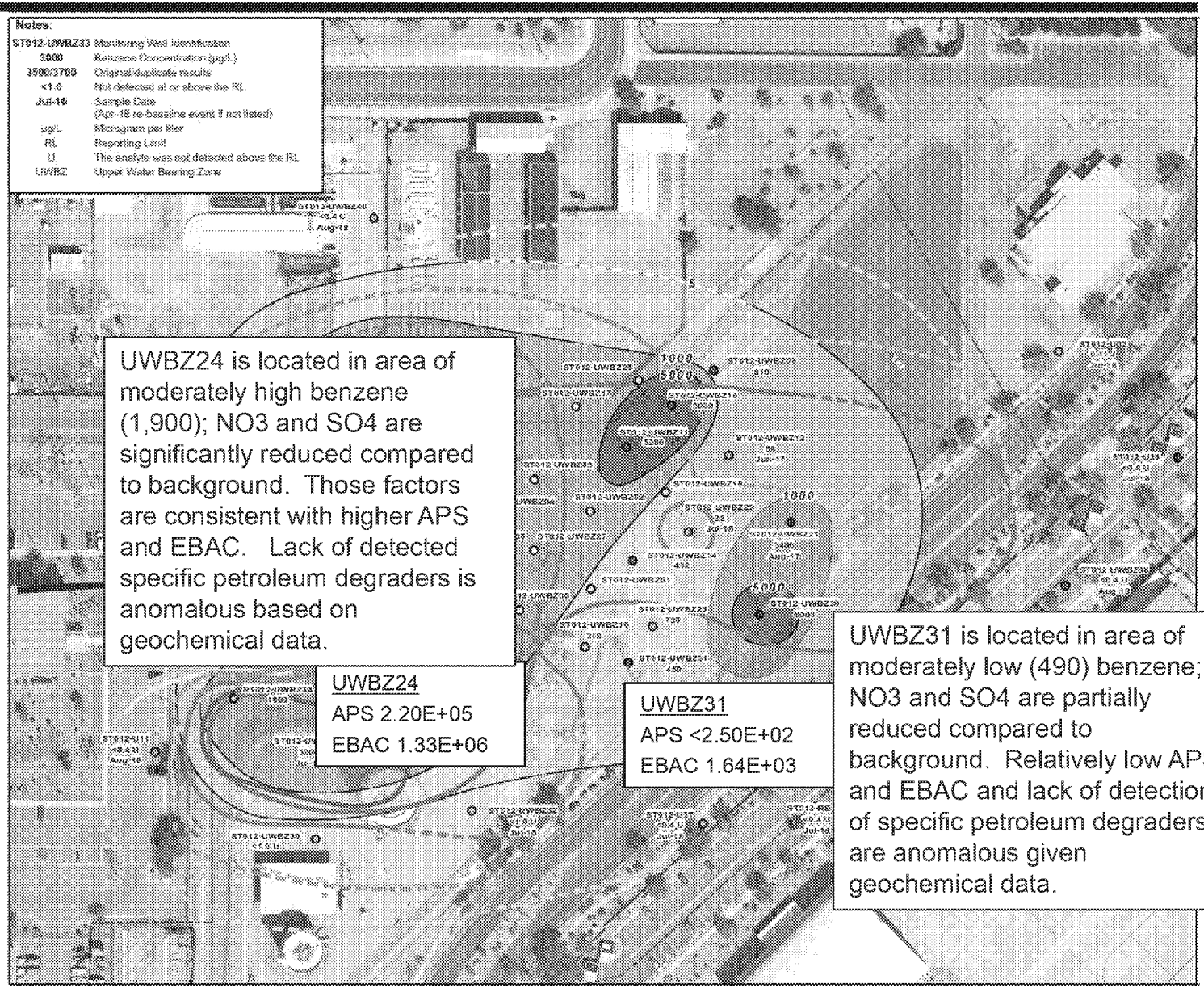
Site ST012 - Microarray Analysis

- Biotrap Sampling Bias – attached growth from suspended bacteria/archaea represent a portion of the soil/water biome.
- Sensitivity of Functional Gene Detection
- Genes for Carboxylation of Benzene and Naphthalene:
  - Small fraction of all the identified sequences are known/published
  - Variations in sequences present in homologs/natural clones likely result in false negatives
  - Similar experiences with functional gene detection at chlorinated solvent sites
- Bioremediation expectation is that biome diversity will reallocate under enhanced condition. Undetected and/or unevolved portions of the baseline consortia increase in rank abundance and population. This is supported by molecular biological techniques used to track bioremediation.

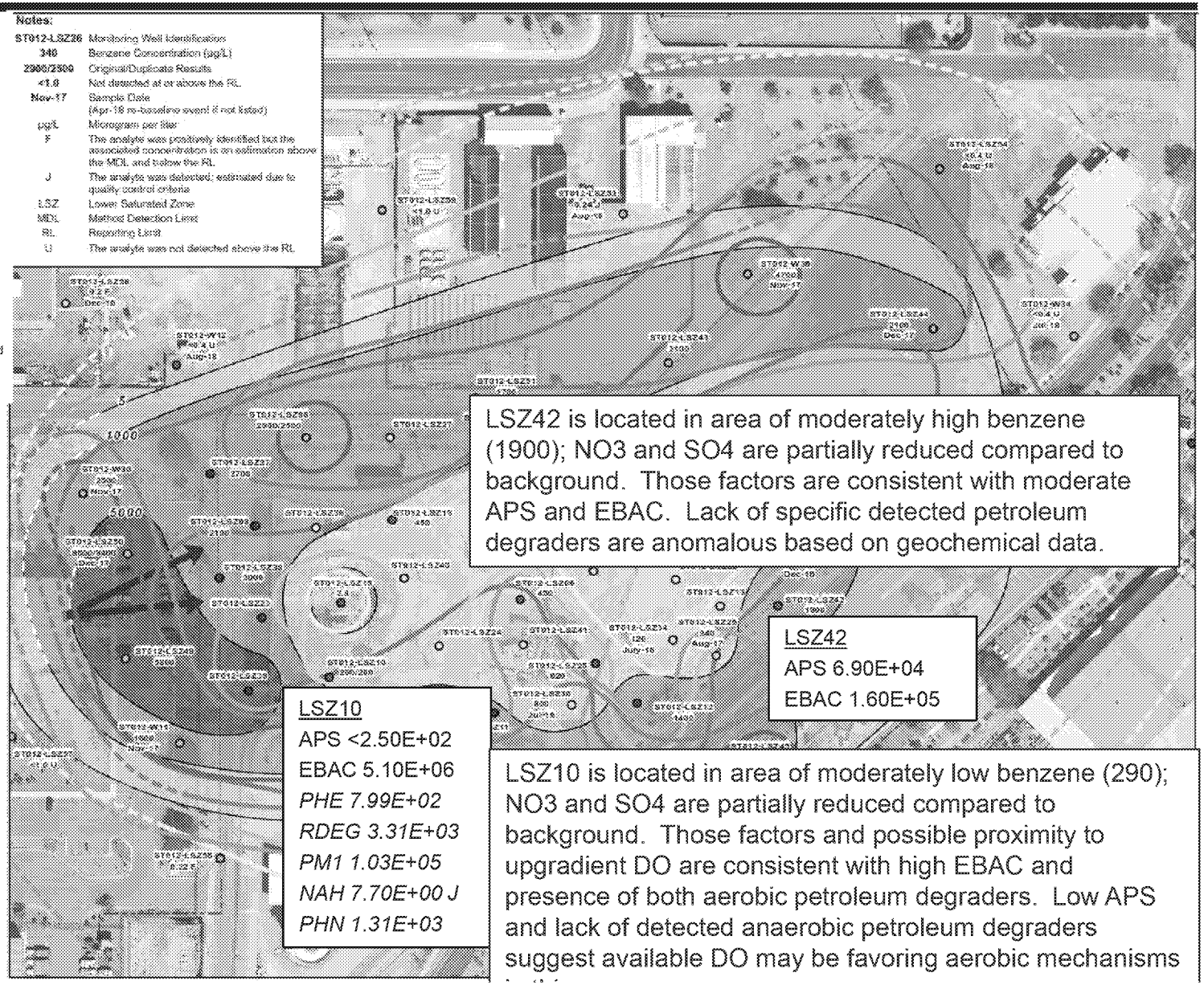
Site ST012 Sulfate, Nitrate and Benzene in CZ with Bacterial Testing



Site ST012 Sulfate, Nitrate and Benzene in UWBZ Bacterial Testing



Site ST012 Sulfate, Nitrate and Benzene in CZ with Bacterial Testing



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EPA Presentation

BCT Meeting
16 October 2018

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PFOS/PFOA SI Update

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16 October 2018

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Site LF004 Landfill Remedial Action

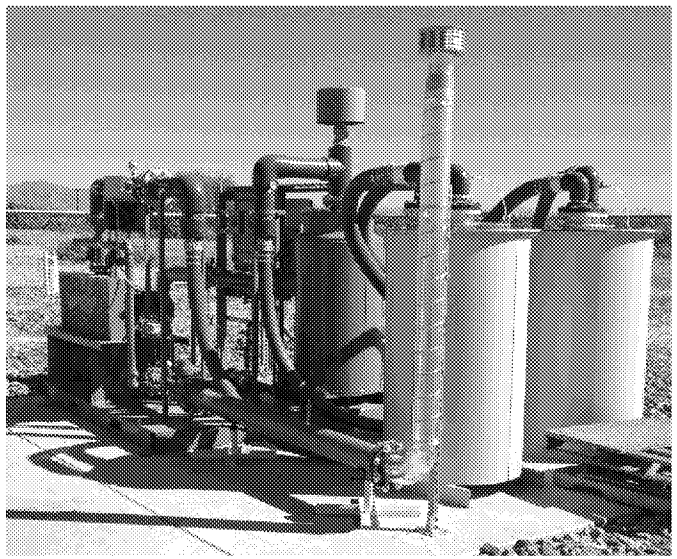
BCT Meeting
16 October 2018

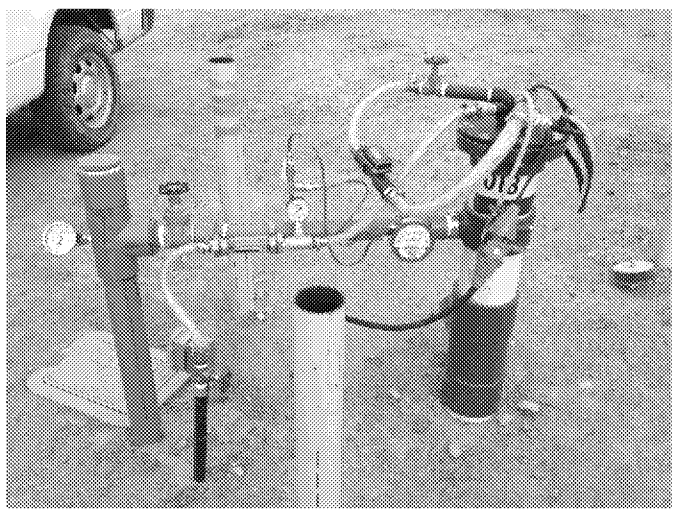
Site LF004
Former AST SVE System Update

- SVE treatment of vadose zone complete. SVE system shutdown in Oct 2017. Total mass removed via AST SVE is approximately 97.1 pounds.
- TCE and PCE concentrations have been below Shallow SVSLs in the AST area for past eight quarters and below Deep SVSLs for past four quarters with the exception of VMP-11D
- Final result from quarterly vapor sampling conducted at VMP-11 in Aug 2018 was 0.7 mg/m^3 which is below the SVSL (2.0 mg/m^3) . Last two quarterly samples have been below SVSL.

Site LF004
LF01-W17 Area IWAS System Update

- Began operation 29 Aug 2014 (approximately 41 months of operation). Oxidant injection and recirculation at IWAS wells was completed in Feb 2018
- An estimated 13.6 pounds of TCE and PCE were removed by vapor extraction from IWAS system during remedial operations
- May 2018 PDB results indicate all monitoring wells below the TCE MCL





Site LF004
Southern Area SVE and Oxidant Injection

- **SVE treatment of vadose zone complete.**
- **Oxidant injection and recirculation operations completed in February 2018**
- **Final May PDB results indicate only three PCE MCL exceedances: W09D 5.1 µg/l, W24 at 7.9 µg/l, W24M at 6.2 µg/l. Sufficient oxidant measured in September 2018 (0.3 mg/l at W24 and 3.3 mg/l at W24M) remains to degrade residual PCE concentrations.**

LF004 Remediation System Recent and Upcoming Activities

- Next semi-annual groundwater sampling with PDBs will be performed in Nov 2018
- Next quarterly soil gas sampling at VMP-11 scheduled for Nov 2018
- Annual landfill inspection completed 25 Sep 2018
- Posting of analytical data to Sharepoint will continue as results are available

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Site FT002
Fire Training Area Remedial Action

BCT Meeting
16 October 2018

Site FT002 Update

- Groundwater samples at FT002 collected and analyzed as part of PFOS/PFOA program indicate all VOCs were non detect except for 1-2 DCA which was qualified as estimated and below the AWQS/MCL
- Groundwater samples at FT002 collected and analyzed as part of PFOS/PFOA program indicate all SVOCs were non detect
- Summary report and tables of groundwater results submitted on 22 Aug 2018
- AF response to EPA and ADEQ comments on Remedial Action Completion Report under AF review
- If necessary, a technical conference call with regulatory agencies to resolve comments can be scheduled

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Site SS017

Old Pesticide/Paint Shop

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SS017 Update

- The soil remediation report was submitted to ADEQ in Jul 2018 . Soil remediation report approved by ADEQ VRP in Aug 2018. AF preparing VRP NFA submittal.
- Draft Jan 2018 data summary report submitted 17 Aug 2018. Received ADEQ comments on 17 Sep 2018. Response to comments in progress.
- May and Aug 2018 data summary reports in progress

Site SS017 Groundwater Monitoring Update Path Forward

- 4Q 2018 groundwater sampling and land use control inspection scheduled for Oct 2018

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Site ST035
Former Building 760

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ST035 Update

- AF in discussions with ADEQ regarding decommissioning of monitoring wells
- SVE system and enclosure will also be decommissioned

Partial Delisting

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16 October 2018

PARTIAL DELISTING

NCP [40CFR 300.425 (e)]

- **A site may be deleted from the NPL when no response or no further response is appropriate.**

Deletion criteria [OSWER 9320.2-22, Sect. 5.2]

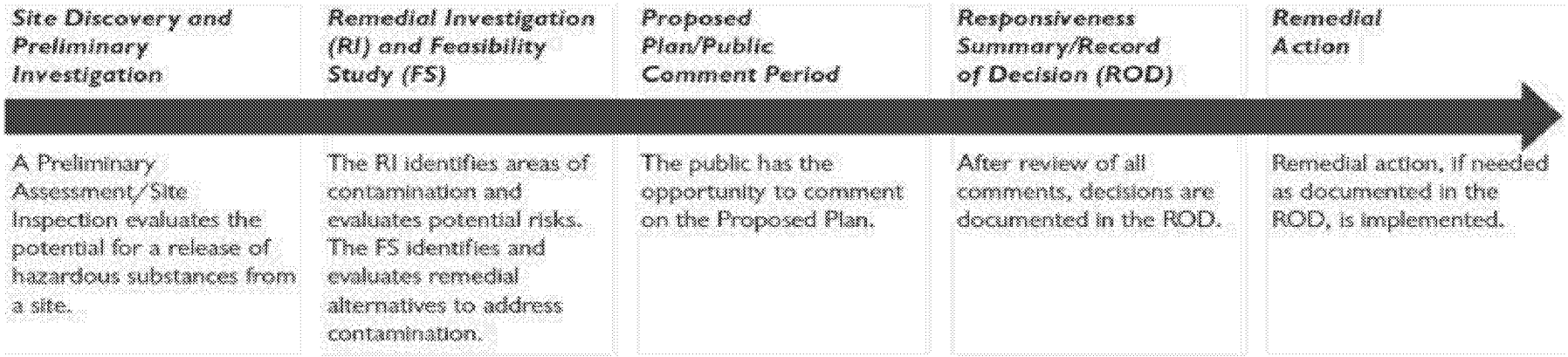
- **All appropriate response actions required are implemented.**
- **The remedial investigation has shown that the release poses no significant threat to public health or the environment, and therefore, taking of remedial measures is appropriate.**

PARTIAL DELISTING

- **Site completion criteria [OSWER 9320.2-22, Sect. 4]**
  - **All Remedial Decision Documents have been Completed and the Selected Remedy is Consistent with CERCLA, the NCP, and EPA Policy and Guidance**
  - **All Response Actions have been Completed and Appropriately Documented in the Site File**
  - **Institutional Controls are In Place**

PARTIAL DELISTING

Figure 1a. General CERCLA Investigation and Cleanup Process



PARTIAL DELISTING

Three categories

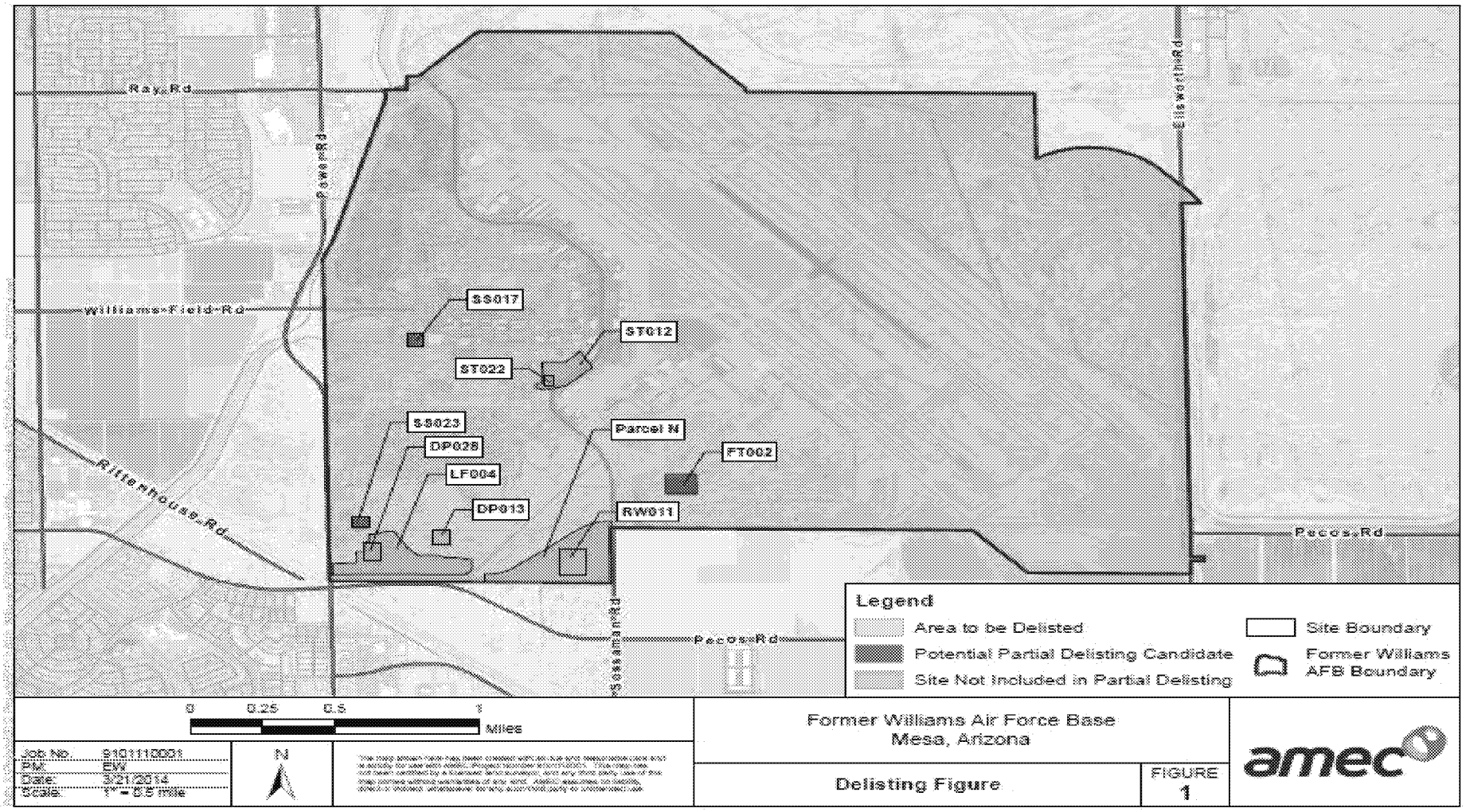
- Partial Delisting Candidates
  - 21 sites that are NFA in RODs
  - 5 sites where DEURs are in place or soon will be (SS024)
- Potential Partial Delisting Candidates
  - SS017 with IWF and Decon Pad
  - FT002
- Sites not included in Partial Delisting
  - SS012
  - LF004 (Parcel N includes RW011)
  - ST022
  - DP028

PARTIAL DELISTING

Exhibit 5-1
Example Deletion Docket Documents

- ✓ Consent Decree
- ✓ Action Memoranda
- ✓ Community Relations Plans
- ✓ Superfund State Contract
- ✓ Cooperative Agreements
- ✓ Agreements with Potentially Responsible Parties
- ✓ Design Plans and Specifications
- ✓ Construction Inspection Reports
- ✓ On Scene Coordinator or Pollution Reports
- ✓ Five-Year Reviews
- ✓ Operation and Maintenance Plans
- ✓ Preliminary Close Out Report
- ✓ Transcripts from Public Meetings
- ✓ Institutional Control Documentation
- ✓ Monitoring Reports

PARTIAL DELISTING



PARTIAL DELISTING

PARTIAL DELISTING CANDIDATES					
OU	Site ID	Site Name	Remedy	Key Activities and Documents Supporting Remedy Selection and Delisting	Note
1	SS001	Hazardous Materials Storage Area	OU-1 No Further Action	IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	No action was required
1	FT003	Fire Protection Training Area #1	OU-1 No Action Required	ES, 1984. Installation Restoration Program, Phase I AV, 1987. Phase II Confirmation /Quantification, Stage 2 IT, 1990. Final Decision Document, Fire Protection Training Area No. 1 IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No contamination identified. FT003 did not proceed to the risk assessment or feasibility study.
1	ST005	5 USTs at Bldg 789	OU-1 No Further Action	IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	No action was required
1	ST006	5 USTs at Bldg 725	OU-1 No Further Action	IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	No action was required
1	ST007	2 USTs at Bldg 1086	OU-1 No Further Action	IT, 1991. Final RCRA Partial Closure Report for Building 1085 and Building 1086 Tank Systems IT, 1992b. Final Remedial Investigation Report, OU 1 IT, 1993. Facilities Assessment IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	Removal and off-site disposal of contaminated soils (1987). Remedy complete, no further action required.
1	ST008	3 USTs as Bldg 1085	OU-1 No Further Action	IT, 1991. Final RCRA Partial Closure Report for Building 1085 and Building 1086 Tank Systems IT, 1992b. Final Remedial Investigation Report, OU 1 IT, 1993. Facilities Assessment IT, 1994b. Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	Removal and off-site disposal of contaminated soils (1990). Remedy complete, no further action required.
1	SD010	Northwest Drainage Area	OU-1 No Action Required	AV, 1986, Phase II Confirmation /Quantification, Stage 1 AV, 1987, Phase II Confirmation /Quantification, Stage 2 IT, 1990b, Final Decision Document, Northwest Drainage System IT, 1992b, Final Remedial Investigation Report, OU 1 IT, 1993, Facilities Assessment IT, 1993c, Final Work Plan Addendum, OU 1 IT, 1993d, Baseline Ecological Risk Assessment IT, 1994b, Final Record of Decision, OU 1 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999, Letter RE: State Concurrence IT, 2001a. First Five Year Review Report MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No contamination identified. SD010 did not proceed to the risk assessment or feasibility study.

PARTIAL DELISTING

PARTIAL DELISTING CANDIDATES					
OU	Site ID	Site Name	Remedy	Key Activities and Documents Supporting Remedy Selection and Delisting	Note
3	SD009	Southwest Drainage System	OU-3 No Further Action	ES, 1984. Installation Restoration Program, Phase I AV, 1986. Phase II Confirmation /Quantification, Stage 1 AV, 1987. Phase II Confirmation /Quantification, Stage 2 IT, 1987. Remedial Action Report for the Southwest Drainage System IT, 1987a. Plans and Specifications for Remediation of the Southwest Drainage System Ditch IT, 1990a. Final Decision Document, Southwest Drainage System IT, 1992. Final Feasibility Study Report, OU 2 IT, 1992c. Final Record of Decision Report, OU 2 IT, 1993. Facilities Assessment IT, 1993d. Baseline Ecological Risk Assessment IT, 1994c. Final Evaluation/Assessment Report USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2001. First Five Year Review Report MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	Removal and off-site disposal of contaminated soils (1988 and 1993). Remedy complete, no further action.
4	LF026	Concrete Hardfill Area	OU-4 No Action Required.	IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 IT, 1997. Final Hardfill Area Compliance Verification Report IT, 1997a. Final Remedial Investigation Report, OU 4 IT, 1997b. Final Feasibility Study Report, OU 4 IT, 1997d. Final Proposed Plan for OU 4 USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report IT, 2008. Final Record of Decision, OU 4 URS, 2013. Third Five-Year Review Report MS, 2006. Second Five Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No remedial action required.
4	SS016	Electroplating/ Chemical Cleaning Shop (Building 1085)	OU-4 Institutional Controls in the form of a deed restrictions and DEUR	IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 IT, 1997a. Final Remedial Investigation Report, OU 4 IT, 1997b. Final Feasibility Study Report, OU 4 USEPA, 1998. Letter RE: Proposal for Reclassification of Site ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report IT, 2008. Final Record of Decision, OU 4 URS, 2013. Third Five-Year Review Report MS, 2006. Second Five Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No remedial action required. Air Force agreed to record a DEUR for Site SS016 in the Record of Decision. DEUR recorded 1/16/2009.
4	SD018	Oil Water Separator (Facility 550)	OU-4 No Action Required.	USEPA, 1998. Letter RE: Proposal for Reclassification of Site ADEP, 1999. Letter RE: State Concurrence IT, 2008, Final Record of Decision, OU 4	No action was required

PARTIAL DELISTING

PARTIAL DELISTING CANDIDATES					
OU	Site ID	Site Name	Remedy	Key Activities and Documents Supporting Remedy Selection and Delisting	Note
4	SS019	Former Skeet Range	OU-4 Removal of affected surface soil, and installation of a protective cap, Institutional Controls in the form of a DEUR, and compliance with an approved O&M manual.	IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 ADEP, 1999. Letter RE: State Concurrence IT, 2001. Final Work Plan, Lead in Soil Investigation, South Desert Village IT, 2001a. First Five Year Review Report IT, 2001b. Lead in Soil Investigation Report, South Desert Village HGL, 2003. Final Remedial Action Report for Sites SS019 and SS020 IT, 2008. Final Record of Decision, OU 4 MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	Removed six inches of top soil and replaced with clean soil (1998). DEUR recorded September 1998. LTM of soil cap in housing area and implement the DUER that was established when the property was transferred to the Arizona State University (2000).
4	SS020	Firing Range and Skeet Range	OU-4 SS020 Skeet Range - Institutional Controls in the form of a deed restrictions (non-residential usage only) and DEUR. OU-4 SS020 Firing Range - Removal of affected surface soil, and Institutional Controls in the form of a deed restrictions (non-residential use only) and DEUR.	IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 ADEP, 1999. Letter RE: State Concurrence IT, 2001. Final Work Plan, Lead in Soil Investigation, South Desert Village IT, 2001a. First Five Year Review Report IT, 2001b. Lead in Soil Investigation Report, South Desert Village HGL, 2003. Final Remedial Action Report for Sites SS019 and SS020 IT, 2008. Final Record of Decision, OU 4 URS, 2013. Third Five-Year Review Report MS, 2006. Second Five Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	DEUR recorded on 09/15/2008 for firing range portion. DEUR recorded 10/24/2012 for skeet range
4	SS021	Facilities 1020 & 1051 and Surrounding Area	OU-4 Institutional Controls in the form of a deed restrictions (non-residential use only) and DEUR	IT, 1993. Facilities Assessment HNUS, 1993. Basewide Environmental Baseline Survey IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 IT, 1996c. Final Ordnance Clearance Report IT, 1997a. Final Remedial Investigation Report, OU 4 IT, 1997b. Final Feasibility Study Report, OU 4 ADEP, 1999. Letter RE: State Concurrence IT, 2001a. First Five Year Review Report IT, 2008. Final Record of Decision, OU 4 MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No action was required. A DEUR was recorded on 09/20/2007.
4	SS023	Bldg 1069	OU-4 No Action Required.	USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2008. Final Record of Decision, OU 4	No action was required
4	SS024	Building 1010, Pesticide (Entomology) Shop	OU-4 Institutional Controls in the form of a deed restrictions (non-residential use only) and DEUR	HNUS, 1993. Basewide Environmental Baseline Survey IT, 1995c. Final Work Plan, OU 4 IT, 1995d. Final Field Sampling Plan OU 4 IT, 1997a. Final Remedial Investigation Report, OU 4 IT, 1997b. Final Feasibility Study Report, OU 4 IT, 2001a. First Five Year Review Report IT, 2008. Final Record of Decision, OU 4 MS, 2006. Second Five Year Review Report URS, 2012. Third Five-Year Review Report (Insert Proposed Plan and Public Meeting Minutes as applicable)	No action was required. Air Force agreed to record a DEUR in the Record of Decision. DEUR recoded 9/14/2007.
4	SS033	Facility 1004, Small Arms Munitions	OU-4 No Further Action	USEPA, 1998. Letter RE: Proposal for Reclassification of Site USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 2008. Final Record of Decision, OU 4	No action was required.
5	ST025	Airfield Underground Storage Tanks (and 55 gallon drum)	OU-5 No Further Action	USEPA. 1998. Letter RE: Proposal for Reclassification of Site USEPA. 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence IT, 1997c. Final Record of Decision, OU 5	Removal and off-site disposal completed (1995), no further action required.

PARTIAL DELISTING

PARTIAL DELISTING CANDIDATES					
OU	Site ID	Site Name	Remedy	Key Activities and Documents Supporting Remedy Selection and Delisting	Note
5	LF026	Concrete Hardfill Drum Removal Area	OU-5 No Further Action	IT, 1993. Final Facilities Assessment Report IT, 1994c. Final Evaluation/Assessment Report IT, 1995a. Final Action Memorandum, OU 5 IT, 1995b. Final Field Sampling Plan, OU 5 IT, 1996a. Final Remedial Investigation Report, OU 5 IT, 1997c. Final Record of Decision, OU 5 USEPA, 1998. Letter RE: Proposal for Reclassification of Site USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	Off-site disposal of non-hazardous waste (1995). Remedy completed and no further action is required.
5	WP027	Paint Shop Leach Field	OU-5 No Further Action	IT, 1994c. Final Evaluation/Assessment Report IT, 1995a. Final Action Memorandum, OU 5 IT, 1995b. Final Field Sampling Plan, OU 5 IT, 1996a. Final Remedial Investigation Report, OU 5 IT, 1997c. Final Record of Decision, OU 5 USEPA, 1998. Letter RE: Proposal for Reclassification of Site USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	Removal and off-site disposal (1993). Remedy is complete, no further action is required.
5	SS029	Prime Beef Yard	OU-5 No further Action	IT, 1994c. Final Evaluation/Assessment Report IT, 1995a. Final Action Memorandum, OU 5 IT, 1995b. Final Field Sampling Plan, OU 5 IT, 1996a. Final Remedial Investigation Report, OU 5 IT, 1997c. Final Record of Decision, OU 5 USEPA, 1998. Letter RE: Proposal for Reclassification of Site USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	Removal and off-site disposal (1995). Remedy is complete, no further action is required.
5	SS030	Sewage Sludge Stockpile Area	OU-5 No Further Action	IT, 1994c. Final Evaluation/Assessment Report IT, 1997c. Final Record of Decision, OU 5 USEPA, 1998. Letter RE: Proposal for Reclassification of Site USEPA, 1999. Letter RE: Proposal for Reclassification and Partial Deletion ADEP, 1999. Letter RE: State Concurrence	Voluntary removal and off-site disposal (1996). Remedy is complete, no further action is required.
5	SS031	Golf Course Maintenance Area	OU-5 No Further Action	USEPA, 1998. Letter RE: Proposal for Reclassification of Site ADEP, 1999. Letter RE: State Concurrence IT, 1997c. Final Record of Decision, OU 5	Removal and off-site disposal (1996). Remedy is complete and no further action is required.
5	SS032	Bldg 1070	OU-5 No Action Required	USEPA, 1998. Letter RE: Proposal for Reclassification of Site ADEP, 1999. Letter RE: State Concurrence IT, 1997c. Final Record of Decision, OU 5	No action was required.
5	SS034	Munitions Incinerator (facility 1119)	OU-5 No Further Action	IT, 1994c. Final Evaluation/Assessment Report IT, 1997c. Final Record of Decision, OU 5 USEPA, 1999a. Letter RE: Proposal for Reclassification and Partial Deletion of Sites ADEP, 1999. Letter RE: State Concurrence	Removal and off-site disposal completed (1995) , no further action required.

PARTIAL DELISTING

POTENTIAL PARTIAL DELISTING CANDIDATES

OU	Site ID	Site Name	Remedy	Key Activities and Documents Supporting Remedy Selection and Delisting	Note
3	FT002	Fire Protection Training Area #1	OU-3 Bioventing/Soil Vapor Extraction	Additional contamination identified. Likely a small SVE system required. Final Remedial Action Completion Report submitted May 2017. Regulatory comments received on June and September 2017. Response to comments and report finalization under AF review.	Remedy implementation/documentation to be completed in 2014/2015. DEUR recorded 4/4/2008.
6	SS017	Old Pesticide/Paint Shop	OU-6 site (ROD complete)	Quarterly monitoring.	ROD completion/implementation anticipated in 2014/2015. Includes Base Production Well 6 PCB Area.
6	None	Decon Pad at SS023 and Investigative Waste Facility (IWF)	OU-6 No Further Action (ROD complete)	Confirmation sampling was conducted and it was determined that no further action was required at these sites. The AF, State, and EPA signed a consensus statement (#04-1) on 2/4/04 noting that all cleanup requirements are complete and agreed that the Decon Pad and IWF are suitable for transfer.	Confirmation sampling was conducted and it was determined that no further action was required at these sites. The AF, State, and EPA signed a consensus statement (#04-1) on 2/4/04 noting that all cleanup requirements are complete and agreed that the Decon Pad and IWF are suitable for transfer.

SITES NOT INCLUDED IN PARTIAL DELISTING

OU	Site ID	Site Name	Remedy	Rationale for Exclusion	Note
1	LF004	Landfill	OU-1 Install permeable cap, interceptor trench around the perimeter of the capped area, and fence around the perimeter of the interceptor trench and warning signs. Post closure care for 30 years, including landfill cover maintenance, annual soil monitoring, semiannual (every 6 months) groundwater monitoring, and maintenance. Land-use restrictions to protect the integrity of the landfill cover and the operation of the groundwater monitoring system.	Long-term groundwater remedy	SVE system in operation till Q42018 (includes DP028)
5	DP028	Sewage Sludge Tranches in OU05	OU-5 Remediation via capping included as part of the final remedy for the Landfill (LF-04) in OU-1. The capping of DP-28 also included as part of the Explanation of Significant Difference (ESD) approved in June 1994.	Located within LF004	
1	DP013	Pesticide Burial Area	OU-1 No Further Action	Located in Parcel N Debris Area	
1	RW11	Radioactive Instrument Burial Area	OU-1 No Further Action	Located in Parcel N Debris Area	
2	ST012	Liquid Fuels Storage Area	OU-2 Steam extraction/biodegradation system	Long-term groundwater remedy	DEUR recorded 6/17/2008.
4	ST022	Aboveground Storage Tanks 556/557	OU-4 No Action Required	Located within ST012	
N/A	N/A	Parcel N Debris Area	Not applicable	LF004 groundwater plume and MMRP	Includes MMRP site XU403

Air Force Civil Engineer Center

RAB Adjournment Update

BCT Meeting

16 October 2018

Air Force Civil Engineer Center

BCT GENERAL UPDATE

BCT Meeting

16 October 2018

Air Force Civil Engineer Center

2018 BCT MEETINGS/CONFERENCE CALLS SCHEDULE DELIVERABLE TRACKING

BCT Meeting

16 October 2018

ACTION ITEMS

BCT Meeting

16 October 2018